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### EXTRACT

*From an Act prescribing Rules for the Government of the State Library,  
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SECTION 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

SEC. 15. Books may be taken from the Library by the members of the Legislature and its officers during the session of the same, and at any time by the Governor and the officers of the Executive Department of this State who are required to keep their offices at the seat of government, the Justices of the Supreme Court, the Attorney-General and the Trustees of the Library.



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# SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JULY 8, 1871.

VOLUME XXIII.  
Number 1.

## Improved Tank Locomotive.

To Mr. M. N. Forney, mechanical engineer, who is the able New York correspondent of our valuable cotemporary, the *Chicago Railroad Gazette*, we are indebted for the engraving of the accompanying tank locomotive of his design.

The special object of this design is to effect a great reduction in weight and cost as compared with the ordinary 8-wheeled locomotives now in general use. The common American 8-wheeled locomotive carries less than two-thirds of its weight on the driving-wheels. Now a 4-wheeled switching engine, weighing 18 tons, has all its weight on the driving-wheels, and consequently will draw as many cars as an 8-wheeled engine weighing 29 tons. But the lighter locomotive cannot be substi-

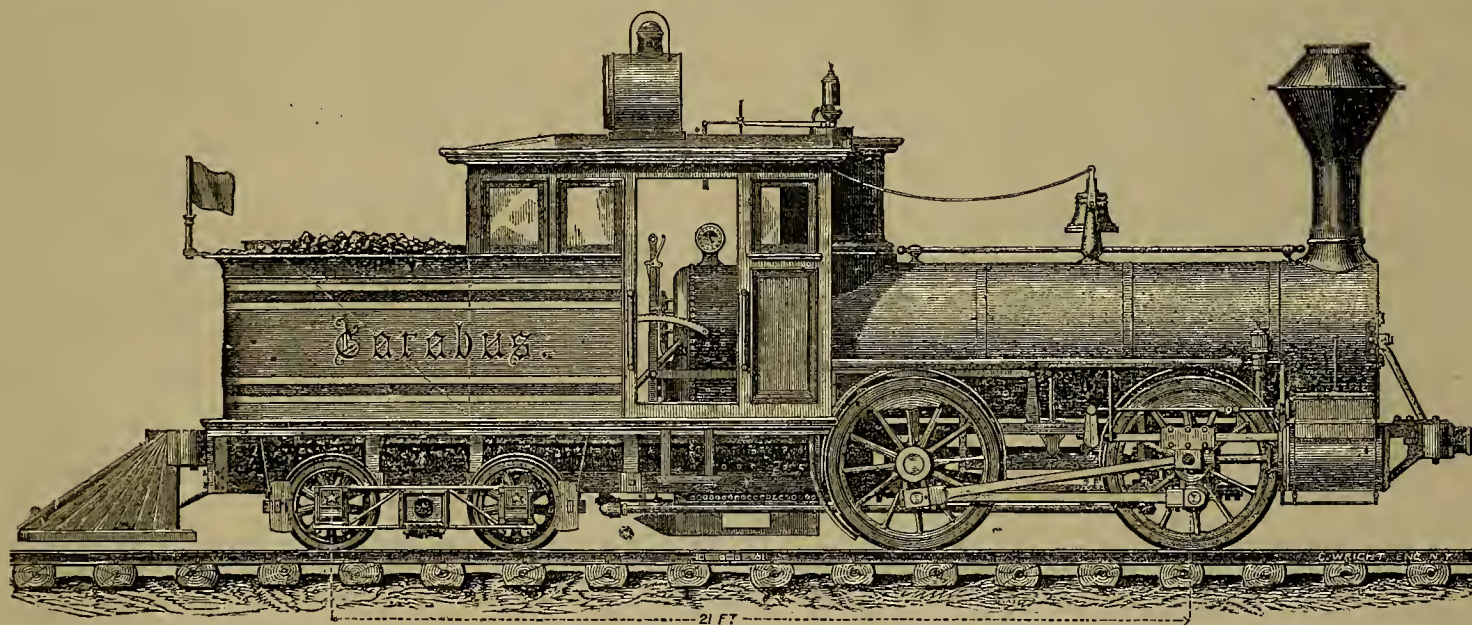
receive the tank, and placing a truck underneath to carry the weight of boiler and fuel. Thus a long wheel-base is obtained which adjusts itself to the curvature of the track, while the whole weight of the engine proper is carried on the driving-wheels. This secures the steadiness of the 8-wheeled locomotive and the adhesion of the one with four wheels.

On tank locomotives the weight of the water and fuel should never be carried on the driving-wheels, because, when the tanks are full, the weight may be sufficient to injure the track, and, when empty, there is not sufficient adhesion. Hence, in this engine, all the permanent weight of boiler and machinery is carried on the driving-wheels, and the variable weight of water and fuel on the truck.

It is safer to run an ordinary locomotive

to keep open a communication to a separate tender, while in summer the hot air from the boiler is carried out of, instead of into, the cab. Thus the cab is warmer in winter and cooler in summer. The foot-board is between the driving wheels and truck, or near the center of the engine, in the steadiest and most comfortable place for the engineer and fireman. These engines will answer a very good purpose for switching, but are intended for general freight and passenger business. They will do any work possibly performed by ordinary locomotives of not over 28 to 30 tons weight, and are especially adapted for light traffic or branch-road service. Engines of this plan, of various sizes, from 12 to 35 tons weight, and with cylinders from 6 to 15 inches diameter, will be furnished by Mr. M. N. Forney, No. 72

**MORE NATURAL CURIOSITIES.**—The *Fresno Expositor* learns from Mr. Powell, a civil engineer of Fresno county, that near the confines of Fresno, Tulare and Inyo counties, in the vicinity of the headquarters of the Keweah, there exists a remarkable piece of country. The Indians say it is the abiding place of the Evil Spirit. The country is rugged and rocky mountains, with deep valleys and precipitous cliffs. Snakes and reptiles of every description abound in untold numbers, and, taken in all, it is a wild and most uninviting region. But aside from this a most curious phenomenon exists. The ground trembles and quakes almost continuously, and the abundant rocks grind and grit together as if being urged by some terrible influence. Frequently deep discharges are heard, muffled and dull, like the distant



NEW TANK LOCOMOTIVE, DESIGNED BY M. N. FORNEY.

tuted for the heavier one on account of its unsteadiness, arising from the shortness of its wheel-base. It is necessary to place the wheels close together, in order to pass around short curves easily. So great is the objection to placing the wheels far apart, that in this country nearly all locomotives which are designed to run at any speed, are built with a truck which is connected with the engine so that the wheels can adjust themselves to the curvature of the track. It is found necessary, in order to keep the truck on the track, to load it with about one-third the weight of the locomotive; this reduces the weight on the driving-wheels and consequently their adhesion. That is, over a third of the weight of the locomotive is sacrificed in order to have a long and flexible wheel-base and a steady-running engine.

The locomotive here illustrated obviates this trouble, not only by carrying all the weight of the boiler and machinery on the driving-wheels, but also by extending the frame beyond the fire-box far enough to

on a crooked road with the truck ahead rather than behind. The source of danger is not in the position of the truck, but in the rigidity of the rear wheels. For this reason, in this design the engine is intended to run with the truck ahead. This brings the boiler, smoke stack, etc., behind,—a plan which, instead of being disadvantageous, is claimed to have some advantages. The most noticeable of these is the influence of the motion of the locomotive (in the opposite direction to that of the air and the smoke in the tubes) on the draft. It stimulates the draft, which is retarded in the common method. Again, this disposition gives an unobstructed view of the track, and there is no liability of its being obscured by smoke or escape steam, the latter often forming a serious inconvenience, especially in cold weather, when the condensed water freezes on the cab windows.

The cab of a tank engine of this plan can be entirely enclosed in cold weather, it not being necessary (as on an ordinary engine)

Broadway (Room 7), New York City.

**HYDE STEAM WAGON.**—The *Coriune Journal* says the Hyde overland steamer was trotted out the other day, and gave satisfaction even to the croakers, all hands having a free ride. It is to be shipped at once to Lake Point and put to work hauling ore, etc. The *Reporter* says: It appears to swing around in the road, at command of the steering apparatus, easier than a man could turn a wheelbarrow on a matched floor! This great engine will draw its thirty or forty tons of freight in trained vans or wagons as readily as it moves unloaded. It is the king of the road in every way. In twenty feet it turns completely around going at its speed, stops with the touch of a valve, and when desired to move, on takes up its march with a step that ordinary obstruction cannot retard.

**POLAR RESEARCH.**—Mr. A. L. Pinart left this city a few months since for Alaska to investigate the scientific and commercial resources of that country.

sound of heavy artillery. At night the sounds seem to be more abundant than in day time. No Indian can be induced to venture near the locality, regarding it with superstitious horror. No theory is advanced by any one to account for the strange phenomena mentioned. We also learn from William Faymonville that above the head of Crane Valley, in this county, another place similar to the one mentioned exists. Parties who have visited the last place named describe the sounds mentioned as like muffled thunder.

**AUSTRALIA MINERALS.**—We have been shown a catalogue of mineral specimens, sent by Capt. H. R. Hancock, Superintendent of the Moontamines, of South Anstralia, as a present to the University of the Pacific. The ores are all of copper. The Moonta mines yield an annual product of 4,600 tons of pure bar copper.

The Sutro Tunnel Commissioners having reached Virginia City, the papers there are interviewing them.



## MECHANICAL PROGRESS.

**THE HELIOTYPE PROCESS.**—In *Nature* for June 1st, W. H. Harrison describes the late improvements by Mr. Ernest Edwards. We quote from the part in reference to the working details:—"The films are prepared upon large sheets of accurately leveled finely ground glass, technically known as 'greyed glass,' about 22 inches by 18 inches is a convenient size. The surface of the glass is first polished by means of a clean piece of rag, with a little solution of wax in ether; the exceedingly thin film of wax thus left upon the glass permits the dried gelatine film to come off easily. The glass plates after being waxed are leveled, and then a measured quantity of a warm mixture of gelatine, bichromate of potash, chrome alum, and water, is poured upon each plate from a jug with a piece of muslin tied over its mouth. The temperature of the solution in the jug is about 150° Fah., and after it is poured over the plate it sets in a very few minutes, but it requires a much longer time to dry. Curiously enough, until it is dry it is not sensitive to light; this fact was found out accidentally, for at first this part of the operations was carefully carried on in yellow light. After the film is set, the plates are taken into a dark room to dry. If any of the fumes given off by burning gas escape into this room, they act upon the film just as light would do, therefore although a gas stove is used to dry the plates, the products of combustion are very carefully carried off. \* \* At a temperature of 90° the films take about twenty-four hours to dry. As they dry they contract slightly, and thus separate themselves from the glass. These dried films are technically termed 'skins,' they are of an orange color, and about one-tenth of an inch thick. The picture is printed on them from a negative, and a faintly visible image is formed; when this image is fully out the films are removed to a dark room. Here each skin is floated in water, and caught upon the surface of a thick plate of zinc; a flat piece of wood, edged with india-rubber is then scraped with considerable pressure over the film, so as to squeeze out all the water between the skin and the zinc. As the film still continues to absorb moisture, it is thus fixed to the zinc with the whole pressure of the atmosphere. After this the zinc with its attached film is left for half an hour at least in a large vessel of water, for the superfluous bichromate of potash to soak out, and then the film is no longer sensitive to light. If the film be thus soaked for several hours, or even days, it does not suffer. The film, upon its zinc plate, is now ready for the printing press. It is damped between each impression, just like a lithographic stone. Then it is inked, and the best roller for the purpose is found to be one made of india rubber, backed inside with 'india-rubber sponge' to give additional softness. Ordinary lithographic ink is used. If stiff lithographic ink be employed, the surface will only 'bite' where light has acted most; if thin ink be used, the leathery surface will only bite in the half tones of the picture; hence each picture is produced by two inkings, and advantage is taken of this circumstance to use two colors, and get warm shades in the half tones. It is very interesting to see the picture gradually growing under the inking process. By this method double-printing is executed with a single pull at the press."

**DUCKHAM'S HYDROSTATIC WEIGHING MACHINE.**—We copy the description from the *Engineering and Mining Journal*:—"The apparatus is simply composed of a piston and cylinder, which may be suspended for use from any crane hook; it is filled with water, which has a connection with an ordinary hydraulic pressure gauge fixed on the exterior of the machine. The piston rod passes downward through the cylinder bottom, and forms a means of attachment for the goods. Immediately these are lifted, as in loading or unloading ships or wagons, the weight is shown on the gauge dial without the slightest extra labor or manipulation, and, consequently, without cost. The piston is fitted with cupped leathers of such a shape as entirely to obviate leakage, as the water cannot escape, and is in itself incompressible. There is no movement of the piston, and, consequently, no friction to affect the accuracy of the weight denoted. Moreover, to insure absolute correctness, each dial is marked to indications given by the attachment of actual adjusted weights or strains to each machine. One of the most notable

worthy features in connection with this invention is, that whereas the few weighing contrivances which exist in other design of large capacity are almost too unwieldy to be worked at all, a Duckham 30-ton machine complete weighs only 2½ cwt. It may be transported from place to place and attached for use by a single man. The 1-ton machine has a piston area of only 7 in., and weighs only 18 lbs. It is only necessary to regulate the strength of the metal to obtain a weighing machine light and delicate for low weights, or a machine combining in an eminent degree lightness and portability, but of sufficient power to indicate any amount of strain which can be possibly applied to it."

**PRESSURE OF FIRED GUNPOWDER.**—In a lecture before the Royal Institution, Capt., Andrew Nohle, F. R. S., describes the latest experiments upon the firing of gunpowder in closed chambers. We quote the conclusions drawn therefrom:—"The maximum of pressure of fired gunpowder, unrelieved by expansion, is not much above 40 tons to the square inch. (2) In large guns, owing to the violent oscillations produced by the ignition of a large mass of powder, the pressure of the gas is liable to be locally exalted even above its normal tension in a perfectly closed vessel, and this intensification of pressure endangers the gun, without adding to useful effect. (3) Where large charges are used quick-burning powder increases the strain upon the gun, without augmenting the velocity of the shot. (4) The position of the vent or firing point exercises an important influence on the intensity of wave action, and in further enlarging the dimensions of heavy guns we must look to improved powder and improved methods of firing the charge, so as to avoid as much as possible throwing the ignited gases into violent oscillation. (5) That in all cases it is desirable to have the charges as short as possible, so as to reduce the run of the gas to the shortest limit. Hence increase of the diameter of the gun by shortening the charge tends to save the gun from abnormal strains."

**ELECTROTYPE IMITATION OF LEATHER.**—The following is from the *Mechanics' Magazine* for May 12th:—"Messrs. Elkington & Co., of Birmingham, have arranged to produce by the electrotype process, imitations of the choicest grains of leather, by means of electro-deposited copper rollers. The system may be briefly described as follows:—An ordinary machine roller is fitted with a mandrel, upon which is deposited, by a new process, the copper facsimile. The latter is an exact copy of any rare or choice skin required to be reproduced, and it is only by a recent improvement in electrotyping that the difficulty of depositing from such a substance as leather has been surmounted. An ordinary skin can thus be impressed with the beautiful surface of morocco skin, even to the finest variations of grain, and several thousand may be copied by one deposit. In all cases the actual skin required to be copied must be sent. The rollers are supplied ready for the machine; or, if preferred, manufacturers may send their own mandrels and have the fac-simile deposited thereon."

**INVENTION FOR BURNING LOCOMOTIVE SPARKS.**—We find this in the editorial correspondence of the *Chicago Railroad Gazette*, June 17th:—"In Worcester, Mass., I had an opportunity to examine Mr. Griggs' invention for burning sparks, which is novel, and which according to his account produces remarkable results in the economy of fuel. It consists of a bell-mouthed pipe placed inside the stack in the position usually occupied by the deflector. This pipe extends from the top of the stack backward to the top of the boiler in front of the cab. Thence it branches down on each side of the boiler and connects with openings in the fire box. By this means, all the sparks which are collected by the bell-mouthed pipe are carried back into the fire-box and have a second chance of being consumed."

**IMPROVED METHOD OF TINNING CAST-IRON.**—"The surface of the cast-iron objects is decarbonized by keeping it for several days in closed vessels with powdered hematite, under the influence of a red heat, until a sample taken out, after being properly cleaned, will take the tinning as easily as wrought-iron. Then the object is slowly cooled, taken out, placed in an acid bath, and plunged in the melted tin alloy, the surface of which is covered with fat or tallow, to prevent oxidation."—*Manufacturer and Builder*.

## SCIENTIFIC PROGRESS.

**DIAMAGNETIC EXPERIMENTS.**—London *Engineering* for June 9th says that the chief novelty at the Royal Institution Conversazione on the 6th was the exhibition of electrical apparatus. We quote a paragraph:—"A powerful electro-magnet was exhibited by Lord Lindsay, and the following magnetic and dia-magnetic experiments were conducted with it and some vacuum tubes belonging to Mr. Cromwell Varley. The poles of the magnet, 2½ in. square in section, were kept 3-16th of an inch apart. A half-crown placed between the poles, when the magnet was not excited of course dropped instantly through, but when the magnet was charged the half-crown was six seconds in falling the distance of 2½ in. In a second experiment a small india-rubber tube, filled with mercury was placed between the poles, and an electric current passed from the battery through the mercury; as soon as the magnet was excited the tube instantly took motion, getting out from between the poles, and curling itself in the form of the letter S, while by reversing the current, the shape of the curve was instantly reversed. Next a coil of copper wire was placed round the vertical pole of the magnet. When the magnet was charged, and a current of electricity sent through the copper coils in one direction, the ring of fine copper wire stuck fast to the magnet. On reversing the electric current, the ring jumped off the pole of the magnet some distance in the air. A lighted taper was then passed through a hole bored along the poles, the light being brought to the space of one-eighth of an inch wide between the two poles; as long as the magnet was excited the light burned brilliantly, the smoke coming out at the extreme ends of the poles, and not rising up directly off the flame, but as soon as the magnet was discharged the smoke rose straight up and suffocated the flame, which was then extinguished. This experiment showed the dia-magnetic properties of warm air. Mr. Cromwell Varley exhibited tubes of various descriptions, to show that the luminous arch was dependent wholly upon the magnetism, and independent of the direction of the electric current. This arch, discovered by Plücker, has been examined by Mr. Varley, and found to consist of very attenuated matter thrown off from the negative pole. This has been demonstrated in the following manner:—A strip of talc 1-10 in. broad and 1 in. long, weighing 1-10 of a grain, is suspended in the exhausted tube by means of a single fibre of raw silk. When the arch is allowed to play against this piece of talc it is repelled by it. The luminous arch does not burn the silk, yet where it strikes the glass tube it makes the tube hot; from which Mr. Varley infers 'that the electric current passing into the negative pole detaches small particles of matter therefrom, which particles are thrown off with tremendous rapidity, and controlled in their course by the magnetic rays forming the luminous arch, and that the heat in the glass is produced by the concussion of these particles against the solid body.' Lord Lindsay, who is now becoming a well-known experimenter, and who has a very large physical laboratory, was present, and conducted many of the experiments himself. The magnet was excited by a 30-cell Grove battery."

**THE GENERAL OCEANIC CIRCULATION.**—From *Nature* for June 8th:—"Having ascertained the existence of an outward under current in the Strait of Gibraltar, which carries back into the Atlantic the water of the Mediterranean that has undergone concentration by the excess of evaporation in its basin, Dr. Carpenter applied himself to the consideration of the forces by which the superficial in-current and the deep out-current are sustained; and came to the conclusion that, as had been previously urged by Captain Maury, a *vera causa* for both is to be found in excess of evaporation, which at the same time lowers the level and increases the density of the Mediterranean column as compared with a corresponding column of Atlantic water. This conclusion, when scientifically worked out, was found to be applicable, *mutatis mutandis*, to the converse case of the Baltic Sound; in which, as was long ago experimentally shown (with a result that has recently been confirmed by Dr. Forchhammer), a deep current of salt water flows inwards from the North Sea, whilst a strong current of brackish water sets outwards from the Baltic, the amount of fresh water that drains into which is greatly in excess

of the evaporation from its surface. Comparing, then, the Polar and Equatorial areas, it is shown by Dr. Carpenter that there will not only be a continual tendency in the former to a lowering of level and increase of density, which will place it in the same relation to the latter as the Mediterranean bears to the Atlantic, but that the influence of Polar cold will be to produce a *continual descent* of the water within its area; thus constituting the *primus mobile* of the General Oceanic Circulation, of which no adequate account had previously been given. This conclusion has been most explicitly accepted by Sir John Herschel."

**MORE ABOUT THE NERVOUS ATMOSPHERE THEORY.**—The following is an extract from the paper by Dr. Richardson to which we have once before alluded:—"The longer we think of the phenomena of muscular motion—and, indeed, of all motion in the living animal body—the less we are able to regard with favor, on the evidence before us, the hypothesis of one force in the organism, and of nerves and nervous centres as producers and conductors of that force; while we are the more inclined to extend our relations of life to the universe as a whole, and to take in every motion as belonging to our living receptive organization. But in order rightly to conceive the adaptation of the organism to the universe, the ideal of a nervous fluid, a true physical something pervading the nervous system, as the first neuro-physicists taught, is indispensable. It, and it alone, affords the connecting-link between force and matter by which force can move matter. Why cannot force—electrical, if you will—move a muscle that has actually passed into the inertia of death? Why, but that the muscle—or, rather, the nervous matter it contains—has lost some physical thing, without which it is dead to force? Why will not the dead eye see? Why, but that it has lost some physical thing with which it was wont to be charged, and through which the wave of light could extend vibration? Why, when I freeze a part of the surface of the body, will not the frozen part feel? Why, but that in the act of freezing I have condensed or have expelled from the nervous matter of the part the physical agent by which the part was connected, in arrangement and condition, with the same agent in the other portions of the nervous organism? Why, when I make an animal inhale a narcotic vapor, do I produce general insensibility?—Why, but that I distribute through the whole nervous system a foreign substance, which interferes with the natural condition for motion of the nervous matter."

**OFFICE OF PROTOPLASM IN FORMATION OF TISSUE.**—The following is from Prof. Wyville Thomson's lecture at Edinburgh University:—"It is impossible in the present state of knowledge to subject any view as to the ultimate mechanism of the formation of tissue through the means of protoplasm to direct proof. It seems now to be a very generally received opinion, supported by Huxley, Max Schultze, Hofmeister, Beale and many others, and notably by Oscar Schmidt, who would seem to bring it almost to demonstration in his beautiful researches on the sponges of the Adriatic, that protoplasm is simply converted, with a certain change of composition, into tissue or 'formed material.' There are, however, almost insuperable objections to this view. The secondary products of organization (formed material) are most various in their chemical constitutions, and it involves the admission that protoplasm may change in its chemical composition till it is almost carbonate of lime, or silica, or starch, or horn or cellulose; the last stage of the metamorphosis being its absolute separation as one of these bodies. Another view which I have always regarded as more probable is that protoplasm, the substance which is endowed with the peculiar vital property, has always the same composition, and that it acts simply by catalysis, inducing, under certain known laws, decomposition and recombination in compounds which are subjected to its influence, without itself undergoing any change, absorbing the nascent products of combination and decomposition, and recombining them and reserving them with reference to the development or maintenance of the organ to which it gives its life."

A HUMANE way of killing insects for preservation is to drop them into a jar of carbolic acid gas. This does not injure their colors in any way, but kills them quickly. The gas may be easily retained in a stoppered bottle, and is very easy to make.



## CORRESPONDENCE.

### A Trip to Colorado—1.

[Written for the Press.]

I start from Omaha. I travel on the Union Pacific through a fine country which is now being rapidly settled up, owing to the building and the management of this great railroad. This corporation owns vast tracts of land which are apparently of the most fertile character, and which it has placed in the market.

#### Through Nebraska.

Nebraska, thanks to the Union Pacific in great measure, is growing most rapidly. The soil of the plains along the road, after waiting for centuries and gathering strength by its rest, is now producing the richest returns where the husbandman is giving his labor and is calling to his aid the fertilizing power of water. This young State, admitted into the Union in 1867, had a population in 1870 of over one hundred and twenty-three thousand. Favorably situated, with an excellent climate, fine soil, and an immense area of pasture land, we see easily how it proves so attractive to the farmer. And we re-echo the song of Whittier:

We cross the prairie, as of old  
The Pilgrims crossed the sea,  
To make the West, as they the East,  
The Homestead of the Free.

The following extract may be worth publishing: "Regarding the soil of Nebraska, all farmers assure me that they can not be drowned out in wet seasons, nor yet dried up in years of drouth. This phenomenon is thus explained by a New York agricultural editor. 'The sub-soil is clay, slightly mixed with sand, having the singular quality of being porous without being spongy or clammy, absorbing the waters of excessive rains and holding them in reserve against a time of drouth, when the roots of vegetation, which easily penetrate to this depth, draw from it the needful moisture.' In accordance with this view I have observed that Nebraska mud is never lasting. The soil on the uplands is from twelve to eighteen inches thick, and along the streams fourteen to twenty feet."

#### On the Denver Pacific.

We pass through Wyoming, a territory already famous for its mineral wealth and of great promise agriculturally, as well. In 25 hours after leaving Omaha, we reach Cheyenne, the capital of Wyoming, 516 miles west of our starting point; and here we transfer our persons to the care of the Denver Pacific R. R.

This road, 106 miles long, extending from Cheyenne to Denver, was completed June 23, 1870. Its annual report shows that it earned \$304,715, at an expense of \$168,420, during 1870. It is ably managed. John Evans is President, C. W. Fisher, Supt. and Gen. Ticket and Freight Agent, and Jas. S. Potter is Road Master.

Along the line of this road are some colonies of which I shall make mention. Evans is 27 miles from Denver and Greeley about 52 miles. At Hughes, a station 18 miles from Denver, the Denver & Boulder Valley R. R. branches off to Erie, and is being continued thence to Boulder City, a place beautifully located in the foot hills and of which your paper has spoken frequently.

#### The Union Colony at Greeley.

Our train leaves Cheyenne at 2 P. M., and arrives at Denver at 7 o'clock. We have a pleasant ride, reaching, at 4:33, the flourishing town of Greeley. Here are the headquarters of the Union Colony. This is well known from its connection with the editor of the N. Y. Tribune. The people here are apparently making rapid progress and doing excellently well. All branches of industry have their representatives, and editors are found of no mean stamp, as evinced by the columns of the Greeley Tribune.

On April 25th, 1870, the census of Greeley footed up 6 souls, and on July 4th, the 1,200 citizens entertained themselves with reading the Declaration of Independence, with an oration and a ball. No better farming land is reported than that here, and for 50 miles farms join one another. Already rows of trees have been set out on all the streets, and a ditch, 12 miles long, conveys water to the city from Cache la Poudre River. Over 250 houses have been built. The projector of the enterprise and president of the colony is Mr. N. C. Meeker,

for many years agricultural editor of the N. Y. Tribune.

The payment of \$50 entitles any one to become a member and gives him 2 shares of stock and a resident lot valued at \$50. The payment of \$100 gives 4 shares and a \$100 lot. The payment of \$150 gives 7 shares and either water for 80 acres and the right to buy a 'railroad 80 acres' at contract price; or a resident lot valued at \$150.

#### Chicago-Colorado Colony.

Riding on still further we arrive at Burlington. Concerning the Chicago-Colorado Colony, here located, and the country around, I send you some extracts from the Rocky Mountain News, of May 27.

From Denver to Burlington, by the way of Valmont and Boulder City, through the valleys of Reek, Coal, South Boulder, Boulder, Left Hand, and St. Vrain creeks, there is an almost uninterrupted succession of farms and ranchos. Indeed, through these valleys there is scarcely a quarter section not improved in some way. On the unimproved portions grass is from six to eight inches high, and droves of cattle, horses and sheep are luxuriating in its length and abundance. Irrigating ditches are being improved and new ones built with wonderful rapidity, and are carrying the water, month by month, higher up the hill sides and farther over the prairies, increasing the area of agricultural lands in Boulder county, this year, by thousands of acres.

But nowhere is more visible and tangible improvement seen than within the limits of the Chicago-Colorado colony. It should be noticed that wheat is looking remarkably well; oats, ditto., and kitchen gardens as promising as can be desired. The creeks are bank full, with prospect of ample supply during the season. At the colony, the crops that have been put in, even by the most inexperienced, are looking well; out of about 35,000 trees that have been transplanted to the colony nurseries, a few score have died; the remainder are taking to the soil and climate as kindly as could be desired.

Of eight-foot wide ditches, fourteen miles have been constructed; four-foot ditto., nine miles; side and lateral ditches and channels from two feet down, twelve miles. The main ditch is now completed, and the water is running the entire length of Main street, and in several other streets, shorter distances. The excavation of the lake in the northwestern portion of the town, which is intended to cover from two to four acres, is progressing rapidly. Up to the present time the field crops and gardens have flourished finely, without artificial irrigation. In addition to the ditches already mentioned, six miles of main and lateral ditches are under contract.

There have been 315 memberships issued; there are 350 adults on the ground; many of these are single young men, others heads of families, come to get a home ready. As near as can be ascertained, 150 families are already here, either occupying their own or hired houses, or boarding until they can build.

The price of membership is the same as at the outset, \$155 each, for which the colonist receives a tract of land of forty, twenty, ten or five acres, according to location; or, if preferred, three town lots. In addition, the privilege is given to purchase one business lot 25x125, and one residence lot 85x125, at prices varying from \$25 to \$50.

#### Plattsville Colony.

Thirty-five miles from Denver is another colony at Platteville. Here they have purchased a few thousand acres of railroad land and have laid out a town. A canal for irrigating their land is to be built from the Platte River. Coal and building stone are found near the place. Most of the land purchased is west of the Platte, lying between that stream and the St. Vrain, and running down near to the junction of the two. It is level, smooth and fertile; irrigating ditches already in use, from St. Vrain and Boulder creeks, by enlargement and extension, will cover it all. These ditches will be lengthened in time for next year's planting. The intermediate government sections of land are being rapidly taken up by pre-emption and homestead, and the prospect is good for another large and productive settlement, convenient to market, and with natural resources equal to any.

W. H. M.

#### Ruhmkorff's Coil.

EDS. PRESS:—Many persons have very vague ideas of the nature of this machine—that it will destroy human life, etc., etc. Now this instrument has become such an

important means of physical research that it is desirable that its nature and *modus operandi* should be more generally known. The instrument is not a new one, however, being known as early as 1845, though it has now been vastly improved by our modern instrument-makers, and especially by one of our own countrymen, E. S. Ritchie, of Boston. This eminently scientific, and at the same time practical gentleman, has surpassed the European makers in several respects. But we must proceed.

The general principle of the machine is the production, by the electrical phenomenon known as *induction*, of secondary currents of great quantity and intensity from the primary current of a voltaic battery. There are two coils, one of coarse wire, through which after interruption at the break piece (which is made automatic in the European instruments), the primary current passes; around this coil, and carefully insulated from it, is placed a coil of very fine copper several miles in length, and the two termini of this wire form the electrodes of the instrument. The condenser due to Fizeau is an important accessory, and it seems to act on the principle of a Leyden jar. It consists essentially of alternate layers of oiled silk and tin-foil. The primary, not the secondary, current passes through it.

Such is a very general outline; and now let us see what are the effects which the machine produces. It will give a spark in free air, varying in length, and according to the size of the instrument, from 2 inches to 21 or more. A *spark*, did we say? Rather a torrent of sparks of great quantity and intensity. When a Leyden jar is interposed in the circuit, the sparks are greatly diminished in length but vastly increased in power and density; an intense white light is emitted, accompanied by a loud snapping noise, too loud to be long endured.

The grandest phenomena which are exhibited by this magnificent instrument are those of luminous electricity. The Geissler tubes of great variety of shape and form, filled with various liquids and gases, the air being exhausted, when illuminated by the passage of a current from one of these coils, present us with spectacles of the most varied and inimitable beauty.

#### ELECTRICITY.

[To be continued.]

### Battle Mountain, Nevada.

EDS. PRESS:—I send you by express a sample of ore without a name. Mr. Guido Küstel says that it is a new kind of ore. I have forgotten what it contains, but Mr. Küstel will be glad to have a piece of this specimen for analysis. [The sample is received, and we shall send Mr. Küstel a specimen. As soon as possible, we shall give the nature of the mineral.—EDS. PRESS.]

Our camp is looking up. The Little Giant is turning out ore which assays from \$250 to \$900. There has been a very rich strike made on the south side of Battle Mountain, which bids fair to be one of the best mines in the State. It is known as the Yuba, and is owned by Heintzelman, Wood and others. It shows a fine vein, assaying from \$350 to \$700.

The new mill of the Nevada Butte Co. started up this week. They have a large amount of good ore out, and will be able to run steadily on rock from their own mine. The White and Shiloh look well. The Buena Vista, Teidalph and others are being worked in earnest, and will no doubt prove good properties.

F. H.

Battle Mountain, June 25, 1871.

#### Information Wanted.

EDS. PRESS:—I should be much obliged if you, or any of your readers, would inform me if the ratio of loss of mercury is generally found to be in proportion to the quantity of silver ore worked by amalgamation, or in proportion to the silver extracted therefrom; that is, if the loss increases in the ratio of the richness of the ore, and, if so, what quantity is lost to each pound of silver extracted?

C. H. A.

Benton, Mono Co., June 25, 1871.

### The Mining Ditches at Smartsville.

The gravel mines of this section are regarded as the richest in the State, and, in fact, in the world, which idea is very naturally obtained from the success attending their operations. But this idea is to a great degree erroneous. The extent of these mines is exceedingly limited, and the yield per cubic yard is not extraordinary. Indeed, there are probably thousands of acres of gravel beds in California equally as rich, and no doubt many that would yield more. But the great secret underlying the profitability of these operations is in the bountiful supply of water at their command. The Excelsior Canal Company, that supplies nearly all the demands, is a consolidation of five companies, whose works have been projected from time to time since 1851. The company now has three ditches running from the South Yuba and Deer Creek, which furnish all the water for which they are called upon, while the Nevada Reservoir Ditch Company, having its source at Wolf Creek, brings in large volumes in the winter and spring months, most of which is used in the Blue Point and Smartsville Consolidated claims. The works now owned by the Excelsior Company cost, originally, close upon a million dollars. Of course they could be constructed cheaper now, perhaps for half the amount—yet this is the amount of capital that has been expended in the works of this company alone, and upon which a fair interest is sought. So you will perceive that the procurement of a claim, even if it be rich, is but a small consideration in undertakings of this character. Years ago, when hydraulic mining was comparatively in its primitive state, fifty cents per inch was charged, while it is now supplied in large quantities for ten. The latter price, under the circumstances, is by far the most profitable. The first cost of construction being paid, the expense of maintaining the ditches and flumes is comparatively trifling. The former seldom get out of repair, if properly attended to, while good flumes will last twelve years, with good care and occasional patching when necessary. Ditch operations have long been regarded as hazardous speculations, and to this view being entertained to a great degree by capitalists is due the poverty of many of the mining counties, which need only a bountiful supply of water to regain their former proud position of wealth and prosperity.—*Marysville Appeal*, May 26th.

LAKE SUPERIOR SILVER.—There is now sufficient evidence respecting the argentiferous deposits at Silver Island, Lake Superior, to warrant the assertion that the rich mines lately opened at that point are but a small part of the vast quantities of the precious metals underlying the whole region. The Detroit papers announce the arrival at that port of a vessel heavily freighted with silver ore taken out from a newly developed vein, sixteen miles from the Silver Island mine, from which it is inferred that the one now worked on the island is merely an out-crop of the vein, and that it continues under the lake to the shore, where it again makes its appearance. The lode from which the last specimens were taken out, has been tested to the depth of sixty feet, and gives promise of great value when developed. It is thirty feet wide, and has been traced for more than three quarters of a mile. The ore contains a sulphuret of silver, nearly pure, and a black quartz so heavy with native silver as to be immensely valuable. It is the opinion of geologists and experts that the vein extends at a varying depth below the surface for a long distance, and that its development will be largely profitable. It will require a great deal of capital to work the veins, owing to the hardness of the quartz, but with proper machinery the reduction of the ores will not be difficult.—*U. S. M. & K. R. Reg.*

OVERLAND TO THE POLE.—This is Capt. Hall's and the Arcticists' last plan,—the only sure one, when ice and currents intervene, as we know, always by sea. Like the Chinese heroes who volunteered to be hung for the satisfaction of the world, Hall will go to latitude 81°, and suffer Arctic terrors. There is this useful result always in view, that in connection with geographical determinations, new whaling and sealing grounds are likely to be discovered, which can be reached annually by swift summer steamers, to considerable individual and general profit. The idea is not theoretical, but has been pursued for years with great success by some shippers of Christianshavn in Norway, whose objective point has been the Spitzbergen country.



# MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**TARSHISH.**—*Miner*, June 24th: We have been shown a letter from a gentleman in London, in which it is stated that they have information from here—and the source of this information is easily traced to one whose opportunities are greater for judging than the Manager himself—that the Schenectady mine is opening up large bodies of ore of an average value of \$500 per ton, and that there is now in sight therein an eight years' supply for a 70-stamp mill.

**GLOBE.**—The mine is looking well. President Winchester has now permanently taken up his residence in Monitor.

### CALAVERAS COUNTY.

**WHAT CHEER.**—*Chronicle*, July 1st: Labor is being pushed on the What Cheer mine in Chili Gulch. The new machinery is kept in motion day and night.

### INYO COUNTY.

**RICH STRIKE.**—*Independent*, June 24th: The Whittekind mine, in Cerro Gordo, is producing large quantities of rich ore from a newly discovered body 30 feet from the surface, and the same distance north from the main shaft. It is reported to be equal to the best ever opened in the mine, \$3,000 worth having been extracted in the past two weeks. Work progresses on the tunnel, which taps the ledge 80 feet below.

**SPECIMEN.**—Mr. Schulte has a specimen of antimonial silver ore, from the San Lucas mine, which assays 600 ounces per ton.

### NEVADA COUNTY.

**ANOTHER STRIKE.**—*Transcript*, June 30th: We mentioned that the North Bloomville Gravel Co. were taking out in their drifts in Shaft No. 1, at Malakoff mine, \$1,000 per day, having prospects from the surface to the bed rock. They are now down to the bed rock in shaft No. 3, and have excellent prospects. The distance between the two shafts is three-quarters of a mile and the striking of the last prospect is important as demonstrating a continuous channel from one to the other.

**ALTONA COMPANY.**—*Grass Valley Union*, June 2d: The mine is on Alta Hill north-west of Grass Valley. We have noticed that the Altona had sunk a shaft to the bed rock through rich gravel. The shaft was continued down, in the bed rock, and a drift run under the gravel 320 ft. from the bottom of the shaft. At that distance the miners have "raised up" into a very rich and extensive body of gravel. Cross tunnels are being started for drifting out the pay dirt.

### PLACER COUNTY.

**DILLON MINE.**—*Herald*, July 1st: The shaft has been pumped out and is down near 60 feet, at which point the full ledge, 3 or 4 feet thick, will be shown in the bottom. This so far as worked has been very rich, all the rock having averaged by mill working over \$80 to the ton. The claim belongs to three working miners, John Dillon, Jacob Cowan and P. Hines.

**ST. PATRICK.**—This company has had a thorough survey of the mine, showing the exact relative position of the ledge at the surface and for a depth of 220 feet, by U. S. Deputy Surveyor Bethell. The shafts and levels show a vast body of rich ore exposed.

**OUR MINES.**—*Stars and Stripes*, June 29: The yield of the Yule claim, above Last Chance, for the past week, was ninety-eight ounces, worth \$1,815, for six days' work by eleven men, or within a fraction of an ounce and a half per day per man.

A two week run of the mill—4 stamps—at the Greene mine has yielded within a fraction of fifty thousand dollars, which is reckoned the heaviest yield on record.

**DUTCH FLAT.**—We are informed that the claims in operation are netting as good returns as in any previous year, and better than for several last past. Rablin, Teaff and others in the Summit claims, Plug Ugly hill, recently patented, realized fifty-five and forty-eight pounds respectively, from their two last clean-ups after two weeks' washing. This Co. owns the fee to over one hundred acres of ground supposed to be as good.

**RATTLESNAKE BAR.**—Cor. of same: We have plenty of water in the North Fork Ditch now, and it is supposed that it will run steadily, so all who wish to mine and prospect can come along.

### PLUMAS COUNTY.

**BIG TUNNEL ENTERPRISE.**—*Quincy National*, July 1st: The Keuka Co., Messrs.

Baker, Thomas and others, are running a prospecting tunnel near the head of Deadwood Creek, which empties into the Middle Fork of Feather river near Butte Bar. The Co. commenced in 1862. They are now in 1,600 feet, 1,200 of which has been through hard bed rock. They expect to strike gravel in a short time now, and will tap the channel at the depth of over 1,200 feet from the surface. The indications are that some very valuable claims will be opened.

### TUOLUMNE COUNTY.

**STILL PAYS.**—*Sonora Democrat*, July 1st: The claim bought by Burgess & Jones of Columbia continues to pay well. Week before last \$3,000 was taken out, and last week 180 ounces from 12 tons of rock. The work of only two men.

## Nevada.

### COPE DISTRICT.

**MOUNTAIN CITY.**—Cor. of *Elko Independent*, July 1st: The Independent mine continues to turn out thousands of dollars weekly. The Argenta Co. are running levels, sinking shafts, etc., preparatory to putting on a large force of miners. The Pride of the West is proving itself one of the richest mines in the camp. At the depth of 80 feet, it shows a four foot ledge of very rich ore. The Eldorado, worked by Hays, Niver & Co., shows at a depth of forty-five feet, a four foot ledge, and the ore works \$125 to \$200 per ton. The Monitor has a force at work taking out some of as rich ore as I have seen in this country.

The following is from the *Bulletin* correspondent at same place under date June 20: During the last year, the Argenta and Excelsior companies have extracted and reduced over 2,000 tons of ore, which worked \$40 to \$100 per ton, and even higher, at a cost for reduction at no time exceeding \$20 per ton. Hitherto the ores extracted have been taken out within 100 feet of the surface, but the Argenta are to commence stoping from the 400-foot level, and will soon keep all the mills in camp employed. The owners of the Independent have out 100 tons of fine ore, and recently 25 tons, reduced by dry crushing and roasting, netted \$300 per ton. This ledge is said to be nearly three feet wide. The El Dorado ledge is five feet in width, and is opened by a shaft 50 feet deep on the ledge. In sinking this, 25 tons of ore was extracted, which gave an average pulp assay of \$230 per ton.

### ELY DISTRICT.

**NEW MILL.**—H. Mathey left on Friday for a 20-stamp mill, which he purposes erecting between this place and Highland. It is to do custom work, though the main purpose is to reduce ores from the mines at Highland. We want at least half a dozen more mills. For the want of them twenty mills are idle within a mile of Pioche.

**BULLION.**—Wells, Fargo & Co. shipped, on June 22d and 24th, by way of Salt Lake, \$31,709.96.

Same of 29th says that they shipped, on June 25th and 27th, \$25,317.67.

**Hiko.**—Cor. of the same: The Crescent is proving itself a No. 1 mill. That it will run right along is certain, as there will be no lack of ore. The rich District of Timpiute and Southeastern must use the Crescent, as, also must Freiberg for a time. Work is being done on several leads at Pahranaagat, with good results. The water is insufficient to run the mill on full time.

### EUREKA DISTRICT.

**GOOD YIELD.**—*Sentinel*, June 27th: Up to yesterday, for June, the Eureka Consolidated has smelted 335 tons of bullion. The Co. is sending the bullion to New York. We are promised that for July we can report 500 tons of bullion produced by the Eureka Consolidated. The ore is in sight to make 3,000 tons of bullion.

**MINING SALES.**—The sales ending yesterday, amount to about \$300,000. Professor Clayton has been here for some time past. His report is looked upon as the test by capitalists. It is rumored that two other sales are about to be made in Secret Cañon, aggregating \$375,000. At no time since the organization of the district has there been so promising an appearance.

**PINTO S. M. CO. (LIMITED).**—Same of 28th: There will be a tunnel started at once, which will be 540 feet long, and will reach the line of the shaft 100 feet below the lowest point yet. When the purchase was made there had been work done during 18 months, and the former owners made a clear profit, beyond the cost of the mine and the price paid for labor, of \$100,000.

Same of 30th says: We learn that the company will construct a 20-stamp dry crushing mill, with roasting furnaces, to be of the best material and workmanship, and in complete working order by November 15th.

**ADAMS AND FARREN.**—Same of 29th:

The strike now made proves that there is a continuous body of ore in the incline and shaft as large as has yet been found in the district. By this discovery it has been proven that there is ore enough to run the three furnaces of the Phoenix Co. now have, for two years at least.

### HUMBOLDT.

**STAR DISTRICT.**—*Silver State*, July 1st: A gentleman from Star, who was a resident of that place when the Sheba mine was the pride of the Humboldt mountains, informs us that at no time did it ever look so well as at the present. He predicts for Star an astonishing revival within a few months. There are now four companies at work, three of them, the De Soto, Whitmore and Trinity, with a small force of men in each, and the Sheba, with about 20 men. The concentrating mill is constantly at work. The De Soto is taking out limited quantities of ore for shipment, as the company has no means of reducing it on the ground. It is reported that this mine has just changed owners, having been purchased by the English company in Reno, at a good price.

**BULLION.**—The amount shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$8,058.

### REESE RIVER.

**CITIZENS' MILL.**—*Reveille*, July 1st: This evening we understand that the boilers will be fired, and the powerful engine set in motion, in order to turn the pulleys.

### WASHOE.

**OPHIR.**—*Enterprise*, June 27th: Good progress is made in sinking the new section of the shaft, though the rock in the bottom has been harder for a day or two. This hardness is not likely to prove permanent.

**SIERRA NEVADA.**—Same of 29th: The ore in the vein, 125 feet below the surface, has greatly improved. Ore enough to keep the mill running for a year is now in sight.

**KENTUCK.**—The company are taking out 50 to 60 tons of ore per day, which is being crushed by the Excelsior, Gold Hill, Quartz, and San Francisco mills.

**BULLION.**—We yesterday saw at the Bank of California \$40,000 in silver bars, from the Yellow Jacket and Crown Point mines.

**SAVAGE.**—The whole of the large body of water tapped a few days since by the Savage Co., continues to flow into the Hale & Norcross. The rush of water forced back such a quantity of slaty rock as to block up the tunnel from the Savage shaft. This is gradually being cleared out, and when the pumps of both mines can attack the water, the draining will be hastened.

**IMPERIAL.**—Same of 30th: Annual meeting has been held, and report submitted. The total amount expended on the Imperial-Empire shaft is \$430,452, and the developments have been carried to the 1,300-foot level. The results are not very satisfactory as yet, but the work is still pushed with promise.

**HOPE MINE SOLD.**—Same of 30th: James Fair and John Mackey have purchased the Hope mine in Silver City, below the Devil's Gate. It is said that their principal object was to secure the water.

**CHOLLAR-POTOSI.**—The ore breasts look as well as ever, the usual quantity of ore is being extracted and the assays run about the same as for months past.

**HALE & NORCROSS.**—Same of July 1st: The water was thought to be somewhat on the wane in the Hale & Norcross mine yesterday. It is believed that the hoisting tanks and pumps are beginning to make some impression.

**ITEMS.**—*Gold Hill News*, June 27th: Owing to the hoisting works of the Crown Point mine being fully employed, no arrangements can probably be made to work the lower depths of the Belcher through the Crown Point shaft. Arrangements perhaps might be made with the Yellow Jacket. On the 21st inst., \$24,000 was sent down from the Crown Point mine, and on the 22d, \$27,000 from the Chollar-Potosi.

**BULLION FOR JUNE.**—*Enterprise*, July 2d: The amount shipped from the office of Wells, Fargo & Co. in this city, last month, was 305 bars, weighing 27,287 pounds and worth \$741,467.40.

The water in the Hale & Norcross holds about the same. The pumps and tanks are kept constantly running and some impression is being made upon the volume of water below.

**SUTRO TUNNEL.**—The tunnel was in yesterday 2,178 feet. The rock is hard, requiring powder. There is very little water at the face of the mine.

### WHITE PINE.

**REVIEW.**—*News*, July 1st: In the North Aurora a large body of rich ore has been struck. The ore now gives a regular average, at the mill, of \$92 per ton. The

dumps of the North Aurora, Ward Beecher and Eberhardt are becoming choked up with ore—the tramway, carrying 135 tons per day, and the 60-stamp mill, pounding away regularly, not being able to keep them clear. There are now 1,100 tons piled up at the mill, Mr. Attwood intends to shut down the tramway, straighten the line, after the height of some of the posts; and when this is done, he expects to be able to transport sufficient ore to supply the International and Stanford mills. The engine and machinery for the steam hoisting works on the Ward Beecher are on the ground. The Ward Beecher Consolidated, is also under Gov. Bladell, developing into a first-class mine. The Manhattan mill is running steadily, and it is the intention to shortly start up the Dayton, on ore from this mine. A large body of high grade ore has been struck in the Featherstone, an old location. There has been no time in the history of White Pine when the mines throughout the District looked as promising as at present.

The hullion shipment for the last week amounts to \$53,794.42.

**ITEMS.**—Eberhardt ore now coming out assays \$50 per ton. Shipping 30 tons daily to mill....South Aurora has 900 tons at the mill....Ward Beecher Consolidated ships 35 tons daily of good ore....O. H. Treasure looks well, and is shipping ore to Big Smoky mill.

## Arizona.

**MINES.**—Prescott *Miner*, June 24th: The California spirit of '49 is rampant among our people. Ledges have been found to the north, east, west and south of Prescott, and are being opened with a will. Capitalists and experts from other States and Territories are here, buying and examining, and soon engines and reduction works will be heard and seen. We went to Bradshaw, we saw the metal, the water, the timber, the prospectors and miners, and are more than ever convinced that Arizona is the richest mining section of Uncle Sam's domain. Silver bricks are now quite common in Prescott, and silver ore that assays from \$100 to \$10,000 per ton, may be seen in almost every house.

**WALLAPAI DISTRICT.**—Same of June 10: A reliable correspondent writes from Mohave county: "Fifteen men are working from day till dark, constructing a large and expensive furnace. They have an excellent wagon road from some of their mines to the furnace. They have now on the dump, at the Keystone Co.'s mine, 5 to 20 tons of rock that assays nearly \$3,000 to the ton, and are only waiting for ore-sacks to ship it to San Francisco. The San Francisco Co. have a good force getting out rock of the same quality. The Mohave Co. and Nevada Co. will smelt their ores in the district as soon as the furnace is completed. The Spear, Bennet, Five Forks and other companies are developing mines. The Walkapai have constructed a dwelling-house for the miners. The company are opening up two or three promising ledges."

## Colorado.

**CARIBOU MINE.**—*Herald*, June 28th: Upon the part of the mine operated by Mr. Cutter, a small hoisting engine has lately been put in place; upon the half still in control of the original owners, a horse whim is now being put in running order. Another six months will most likely prove the Caribou to be the star mine in the territory.

**PARK COUNTY.**—Cor. of *Denver Tribune*, June 28: At Musquito District, Moyanhan & Hostetter are running four arastras on War Eagle ore, that is yielding \$70 per ton. They are only reducing second-class ore. "Uncle Tom" Cumming is at work on the Ohio lode. Smith & Co., are on a new discovery, that looks well. Mr. Musgrove has leased the Douglass mill, and intends running it on custom ores. Prof. DuBois, at Buckskin, intends having his furnace in operation by the last of July. I understand that it will have a capacity of ten tons per day, and that he intends purchasing ore. Bergh & Edmonds have leased the Bates & Burrall arastra mill and are running on ore that a few years ago was considered worthless, but is now yielding a handsome profit. Hon. J. B. Stussell, agent for a Chicago company, is building two arastras. At Montgometry the Pioneer mill is running on Paragon ore, that is yielding \$100 to \$150 per cord. Mr. Fay is running two arastras, on quartz from the Fay lode, and is taking out good pay.

**ORO CITY.**—Cor. of *Register*, 28th: Last week the Five-twenty mill was started on Printer-Boy ore. The first two cords cleaned up eighteen ozs. in fine gold, though the ore was not as good as the general



average. The Co. estimate that they have broken and in sight within the mine, nearly one hundred cords. A whim has been erected at the main shaft.

The Yankee Blade Co. at Granite, are busy with large preparations for the summer's work. The gulches are all running. The Buckeye is being worked by Hill and Henderson.

ITEMS.—Caribou Post, June 29th:—Hill & Smalley have commenced on the Potosi. At the depth of 35 feet is ore which yields an average of 150 ounces silver per ton. The "Morning Star" is a lode discovered ten days ago, 600 feet northwest from the Caribou. At the depth of three feet it assayed 119 ounces silver per ton. The owners are A. Shea, C. Smith and John Kinball. Six or seven parties are working the bed of Four-mile Creek for gold, and doing well. At Gold Hill, Fuller is working a seven-foot crevice on his White Rock lode. The best of his ore runs 14 ounces per cord, and it averages so well that he is making a net profit of \$100 per day. In Ward District, excavations are making for the chlorination works of Mr. Richardson. Carson, Long, and others are working the Nelson; Mitchell, Williams, Mooney and McDonald the Bonton; Cray, Benson and others the Columbian. The width of the Columbian lode at the surface is not determined. The gangue which fills the vast space between the walls yields, under stamps, two ounces of gold per cord. This is easily mined, and may be obtained in such quantities that if all the stamps of Colorado were put at work on it, the supply would not soon be exhausted. The iron and copper pyrites contain from three to four ozs. of gold per ton, and this gold is diffused with remarkable evenness through the ore the whole length of the vein.

ITEMS.—Same of July 1st:—Mountain Witch ore assays 230 ounces of silver per ton, and has a 7-foot crevice. The Seven-Thirty lode yields \$500 ore, like the Caribou, of which it is thought to be a westerly extension. Mr. McKenzie has a 3-foot crevice at depth of 15 feet on the Boulder County lode, filled with high grade ore. Laramee lode has a 4-foot crevice, and prospects as well as the Trojan. The Old Caribou Co. have just struck, in the east drift, the largest and richest deposit yet. Morning Star assay was \$199 per ton in silver.

### Idaho.

ITEMS.—Avalanche, June 24: Sufficient ore is being taken from the Elmore mine to keep the mill in constant operation. The Chariot continues to yield an abundance of ore from the fifth level south of the shaft. The mine will be worked to its utmost capacity this summer. Stopeing is actively going on in the Peck & Porter; the ore is taken to the War Eagle mill. Supt. Minear is making things lively on the Mahogany. The engine is ready to run. The timbering of the shaft will be completed in a day or two. Thompson & Co. are hoisting water and stoping south of their shaft. The shaft on the Mahogany, 300 feet south of Thompson & Co.'s shaft, is down 50 feet. Bob Morrison is pushing his tunnel into the hill east of the Peck & Porter, and C. S. Miller has a force sinking a shaft on the same ledge near the base of the bluff. Henderson, Townsend and others, on the Morning Star, are getting out good ore. Work is going on in the Skookum, Empire, Red Mountain, Illinois Central, Oro Fino and Udola & Talula Peak. Prospecting continues unabated on the Florida Mountain quartz claims.

Placer miners are working day and night, making the most of the water, which cannot last more than three weeks longer on the hills and in the gulches.

BULLION.—Wells, Fargo & Co. shipped this week 9 bars valued at \$13,575.62.

### Oregon.

DOING WELL.—Sentinel, June 17th: We are informed by one of the owners, that the Rogue River Mining Company are pushing their work forward rapidly, and soon expect to be able to make it pay-out. Their success will encourage others to undertake similar enterprises.

### Montana.

DRY GULCH.—New North West, June 24th: This gulch, known as "Uncle Ben's," has 15 men at work, and the first clean up was made by Gillis & Leveridge, Friday. The clean up was for a six days' run with one pipe, and the result \$850. It is coarse gold and very free from quartz, the largest piece weighing \$7.

PHILLIPSBURGH.—J. J. Lyon & Co. are crushing ores from the Speckled Trout, preparing them for shipment east for reduction. Work on the Comanche has been suspended for a time. A small 2-stamp battery with an amalgamating battery at-

tached, the handiwork of Wm. Blay and Dr. Bell, started up June 19th. The recent run of the C. S. Co.'s furnaces, by parties who had a short lease of them for experimental purposes, was a failure. The run was only 36 hours, and the product five pounds avoirdupois of silver. Smelting is now considered a failure with the Flint Creek ores, with barrel amalgamation is now the cry.

YAMHILL.—We are informed from Pilgrim Bar, that on Saturday Holcomb & Beery cleaned up \$2,000; Catching & Co., \$2,800, and D. Blair about \$2,000. The miners have water in abundance, and are making the most of it.

GERMAN GULCH.—Independent, June 23d: Earhart, Sheer & Co. cleaned up their ground since the other day, after working three weeks with five men, and took out \$1,250. The ground washed was 15 feet from the bedrock.

PIONEER CITY.—The Pioneer Co., composed of Pemberton, Stuart & Co., cleaned up last week \$5,006.50. The Enterprise Co., consisting of Doc. Young, Robert S. Kelley and J. S. Pemberton, cleaned up \$2,577.66.

GOON SALE.—Mr. Julian Abbott, of Henderson gulch, sold his mining claim to Matt Walworth for \$2,400.

CARIBOO.—We learn that the mines in the Cariboo country yielded larger returns last week than ever. There is no longer a doubt that they are the richest mines in Montana. A hundred dollars a day to the hand by picking and shoveling! O'Donnell & Co. have ground that pays above, and there is not a claim in the gulch that pays less than \$10 a day to the hand.

ARGENTA.—We learn from Mr. Stapleton that the Tootle, Leach & Co.'s smelting works are running out lead containing from \$150 to \$200 worth of silver to the ton; the lead will be shipped to Newark, N. J., for final reduction. Bohn & Co.'s furnaces are running. R. C. Hopkins is running his quartz mill at Bannack, and the mill of W. C. Hopkins is in operation. The places mines of Grasshopper creek are passing into the hands of Chinamen.

BEARTOWN.—Cor. of Helena Gazette, June 26th: At Top o' Deep, Dave Allen and Mell McGee purchased John Allen's one-third interest for \$6,000, cash. Talbot, Woodcock & Co. are making big runs at the mouth of First Chance. Yesterday they took out two nuggets—one of \$76, and the other \$16. Foley, St. Johns & Co. are doing first-rate, with ground enough to work for fifteen years. I have heard that a Chinese company has offered them \$17,000 for their ditch and diggings. Mr. James Dugan has sold his one-fourth interest in Elk creek to his partners, Drowley & Co., for \$3,000, cash down.

TEN MILE CREEK.—The different companies operating in the main creek have had a successful season so far, and most of them will be able to continue work until late in the fall, and then drift out a new supply of dirt during the winter for spring operations again.

Basin gulch, just across the range, has been very lively, and good yields have been the result; but the supply of water is about exhausted and many companies will have to close down entirely.

TO THE MINING INTEREST.—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanic's Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labeled, with details furnished of the condition, etc., of the works from which they come. The collection, if full one, will attract attention and CAPITAL TO OUR MINES. Wells, Fargo & Co. will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanics' Institute, care J. H. OLMORE, San Francisco.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

AGENTS CAN MAKE FROM \$1,000 TO \$5,000 A YEAR in most any section of the country, selling Dana Bickford's new and improved FAMILY KNITER. This Machine is guaranteed (in its present completeness) to meet every want of the household for either domestic or fancy work. Price \$25. Send stamped envelope with full directions for an illustrated book. Address DANA BICKFORD, Vice President and General Agent, 63 Broadway, N. Y. 23v21-6m-1p

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowers, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12m-1p

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

## Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DATE
Albion M. Co., Nev. Co., May 28, 25c June 26—July 17		
Bancroft, Lyon, Nev., June 15, \$2.50—July 18—Aug. 5		
Elgin M. Co., Cal., June 14, \$2.50—July 18—Aug. 14		
Gould & Curry, Va. City, May 18, \$15 June 22—July 17		
Hale & Norcross, Va. City, June 23, \$10 Aug. 1—Aug. 19		
Hanscomb, El Norte Co., April 28, 5c June 10—June 26		
Imperial, G. H., May 22, \$10—June 24—July 1		
Kincaid F. M. Co., Tuo. Co., April 27, \$2.50 June 10—July 1		
Lathrop M. Co., White Pine, May 16, 20c June 22—July 17		
Mahogany, Owyhee Co., L. T. Co., June 22, Aug. 10—Aug. 28		
Marcelina, Nev., June 2, 20c—June 11—August 13		
Meadow Valley Ex., July 6, \$1—August 14—Sept. 11		
Mountain City M. Co., June 8, 25c—July 18—Aug. 8		
Nevada L. & M. Co., May 8, 4c—June 8—July 3		
Ophir, Placer Co., Cal., May 30, 60c—June 30—July 17		
Pinto M. Co., Nev., May 24, 12c—June 26—July 17		
Salamanca, A. M. Co., May 4, 35c—June 12—July 10		
Sierra Iron Co., May 17, 60c—June 25—July 20		
Summer, Kern Co., May 14, 8c—August 15—Aug. 30		
Taylor, El Dorado Co., May 27, 10c—June 12—August 4		
Taylor M. & M. Co., El Dorado, Apr. 14, 25c May 24—June 12		
Tecumseh, Calaveras Co., April 11, \$3 June 12 July 6		

MEETINGS TO BE HELD.	DATE
Altona No. 1—Annual Meeting, July 6	
Chollar-Potosi—Annual Meeting, July 10	
Coos Bay Coal—Annual Meeting, July 17	
Ophir—Annual Meeting, July 3	
Macpherson M. Co. (Cal.)—Special Meeting, July 3	
Pocahontas—Annual Meeting, July 5	
Mohawk & Montreal—Adjourned Meeting, July 5	
Sau Marcial—Adjourned Meeting, July 7	
Savage—Annual Meeting, July 20	
Seattle Coal—Special Meeting, July 12	

LATEST DIVIDENDS—(Within Three Months).	DATE
Chollar-Potosi, \$2—Payable July 11	
Chollar-Potosi, \$5—Payable May 20	
Crown Point \$10—Payable June 10	
Eureka, div. \$2—Payable May 10	
Eureka (Cal.) \$1—Payable July 7	
Eureka Co., \$2—Payable April 20	
Golden Chariot, div. \$1—Payable March 1	
Hale & Norcross, div. \$5—Payable April 10	
Natoma, div. 1 per cent—Payable June 1	
North Star, \$3—Payable May 10	
Overman—Annual Meeting, July 13	
Redington, 1 per cent—Payable June 1	
Yellow Jacket, \$2.50—Payable July 6	
Yule Gravel, 50 cts—Payable July 6	

\*Advertised in this Journal.

## San Francisco Retail Market Rates.

FRIDAY, July 7, 1871.	
MISCELLANEOUS.	
Butter, Cal. fr. 25	45
Pickled, Cal. fr. 25	40
On Oregon, 25	35
Honey, 25	20
Cheese, 25	20
Eggs, per doz. 30	35
Butter, 25	20
Sugar, cr. 65	1.00
Brown, do. 60	.95
Beet, do. 1.00	.90
Sugar, 25	30
Plums, dried, 15	.25
Peaches, dried, 15	.25
Wool Sacks, new 40	50
Second-hand do. 67 1/2	50
Potato, 25	14
Potato, 25	14
Second-hand do. 15	16
Deer Skins, 15	22
Goat skins, each. 25	40
Sheepskins, plain. 12 1/2	25
Goat skins, each. 25	40
Dry Cal. Hides. 15	18 1/2
Wool, 25	17
Dry Mex. Hides. 15	16
Salted do. 9	10

PRODUCE, ETC.	
Codfish, dry, 5.00	12 1/2
Flour, 25	75
Superior, 25	75
Corn Meal, 100 lb. 3.00	25
Wheat, 100 lb. 2.50	62 1/2
Oats, 100 lb. 2.00	50

FRUITS, VEGETABLES, ETC.	
Pine Apples, 5.00	50
Bananas, 5.00	50
Cal. Walnuts, 25	20
Cranberries, 25	75
Cranberries, 25	75
Apples, Early, 50	25
Red Astrakhan, 50	25
Red Astrakhan, 50	25
Peas, 25	75
Plums, Cherry, 60	8
June, 60	12 1/2
Apricots, 25	75
Moorpark, 25	3
White, 25	4
Cherries, 50	10
Cherries, 50	10
Gooseberries, 3	8
Raspberries, 18	20
Strawberries, 8	20
Blackberries, 8	20
Oranges, 25	30
Lemons, 25	30
Limes, 25	30
Fruit, dried, 25	30
Asparagus, wh. 6	10
Artichokes, 25	6
Brussels sprouts, 15	15
Beets, 20	25
Potatoes, 20	25
Salsify, bunch, 12	25
Potatoes, new, 4	50
Broccoli, doz. 1.50	2.00
Chauliflower, 10	20
Chickens, 60	60
Turkeys, 20	25
Ducks, wild, 20	25
Tame, doz. 1.50	2.00
Teal, doz. 1.50	2.00
Geese, wild, each	2.50
Tame, pair, 2.50	3.00
Hens, each	75
Snipe, doz. 1.50	2.00
English, doz. 1.50	2.00
Quail, doz. 1.50	2.00
Pigeons, dom. doz. 1.50	2.00
Wild, doz. 1.50	2.00
Hares, each	40
Rabbits, tame, 50	60
Wild, doz. 1.50	2.00
Squirrel, pair, 25	30
Beef, tend, 20	25
Sirloin and rib	18
Corned, 10	12
Smoked, 10	12
Pork, rib, etc. 12	15
Chops, doz. 12	15
Veal, 12	20
Cutlets, 12	20
Mutton chops, 15	20
Leg, 12	20
Lamb, 12	20
Tongues, beef, ea	15
Tongues, pig, ea	15
Barley, cwt. 1.75	83
Beans, cwt. 1.50	65
Potatoes, 25	14
Potatoes, new, 1.00	25
Hay, ton, 16.00	25
Straw, 100 lb. 9.00	10.00

POULTRY, GAME, MEATS, ETC.	
Bacon, Cal. 18	20
Orgon, do. 18	20
Hams, Cal. 18	20
Hams, Cross e 18	20
Whittaker's 18	20
Johnson's Or. 18	20
Salmon, 18	20
Smoked, 18	20
Pickled, 18	20
Rock Cod, 18	20
Kingfish, 18	20
Perch, 18	20
Fresh water, 18	20
Lake Fish, 18	20
Smelts, 18	20
Herring, fresh, 18	20
Smoked, 18	20
Torpedo, 18	20
Mackerel, p. k. ea 18	20
Fresh, do. 18	20
Cod, 18	20
Halibut, 18	20
Sturgeon, 18	20
Oysters, 18	20
Turbot, 18	20
Crabs, 18	20
Soft Shell, 18	20
Shrimps, 18	20
Pompano, 18	20

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For home use or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. Export Chocery Mills, Bruges, Belgium. 12v25-1p

## Leather Market Report.

[Corrected weekly by Dooliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, July 6.	
SOLE LEATHER.—Price still continues the same, there being a scarcity of light weights.	
City Tanned Leather, 30 B. 25	30
Santa Cruz Leather, 30 B. 25	30
Country Leather, 30 B. 25	30
All French goods still have an upward tendency, with a growing scarcity of leading stocks. No change in domestic skins.	
Jodot, 8 Kil, per doz. 82	00
Jodot, 18 Kil, per doz. 82	00
Jodot, second choice, 11 to 15 Kil, per doz. 82	00
Lemone, 16 to 19 Kil, per doz. 82	00
Levin, 12 and 13 Kil, per doz. 82	00
Merino, 12 to 14 Kil, per doz. 82	00
Correllian, 12 to 14 Kil, per doz. 82	00
Oregon, 12 Kil, per doz. 82	00
Merino, 12 Kil, per doz. 82	00
Common French Cal. Skins, 12 Kil, per doz. 82	00
French Kips, 12 Kil, per doz. 82	00
California Kip, 12 Kil, per doz. 82	00
Eastern Whisker Stuffed Cal. 12 Kil, per doz. 82	00
Eastern Bench Stuffed Cal. 12 Kil, per doz. 82	00
Eastern Cal. for Racks, 12 Kil, per doz. 82	00
Sheep Skins for Topping, all colors, 12 Kil, per doz. 82	00
Sheep Skins for Lining, 12 Kil, per doz. 82	00
California Rasset Sheep Lining, 12 Kil, per doz. 82	00
Best Jodot Cal. 1 Root Legs, 12 Kil, per pair. 5	25
French Cal. Boot Legs, 12 Kil, per pair. 5	25
Harness Leather, 12 Kil, per doz. 82	00
Brilliant Leather, 12 Kil, per doz. 82	00
Stuffed Leather, 12 Kil, per doz. 82	00
Wet Leather, 12 Kil, per doz. 82	00
Buff Leather, 12 Kil, per foot. 18	20
Wax Side Leather, 12 Kil, per foot. 18	20

## New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, June 24, 1871.	
IRON.	
Pig, Scotch, No. 1 (cash), per ton	\$39.00 @ 35.00
Pig, American, No. 1 (cash), per ton	35.00 @ 36.00
Pig, American, No. 2 (cash), per ton	33.00 @ 34.00
Swedish, ordinary sizes, per ton	105.00 @ 120.00
Sheel, second quality, per ton	15.00 @ 16.00
Refined, per ton	75.00 @ 80.00
Rods, per ton	82.50 @ 120.00
Hoops, per ton	85.00 @ 90.00
Scrap, per ton	100.00 @ 120.00
Weld, per ton	65.00 @ 70.00
Wire, per ton	75.00 @ 80.00
Steel, per ton	75.00 @ 80.00

STEEL.	
Sars, best cast, warranted, 18	19 1/2
Sheet, best quality, 18	19
Sheet, second quality, 18	18 1/2
Sheet, third quality, 18	18
Saw-plates, circular, 20	30
Slater, common, warranted, 18	18
Single shear, 18	18
Mottoguo & Co. (cast bars), 18	18
Machinery, round, 11	13
German, best quality, 18	18
German, goat, 18	18
German, eagle, 18	18
Slater, warranted, 18	18
Slater, common, 18	18
Jessop & Sons, common, 18	18
Double refined, 25	25
Stone ax shapes, 25	25

SYNDICATES.	
American Lead, 100 lbs. 7.50	8.00
German, 7.50	8.00
Sar, 8.50	9.00
German, 8.50	9.00
Muselman and American Zinc, 16	17
Antimony, 16	17
Spelter, 16	17
Copper, old, 16	17 1/2

## Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the colored paper are pasted slips representing the date to which the subscriber has paid. For instance, if the figures show that our patron has paid his subscription up to the 21st of September, 1870; 4172, that he has paid to the 4th of January, 1871; 4110, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers. If any error in the names or accounts of subscribers occurs at any time an early notice will secure their immediate correction.

## Our Agents.



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JUNE 20TH.

ROLLER-SKATE.—Allen Thompson Covell, San Leandro, Cal.

DYEING AND COLORING FURS.—Adolph Müller, San Francisco, Cal.

MACHINE FOR MOLDING, PRESSING AND CUTTING SUGAR.—Peter Spreckels and James Peterson, San Francisco, Cal., assigns to Claus Spreckles and Peter Spreckels, same place.

REISSUE.

SPARK-ARRESTER.—Edw'd Wand, for himself, and Benjamin F. Dorris, assignee of Edward Wand, Eugene City, Oregon—Patent No. 99,378, dated February 1, 1870.

DESIGNS.

STEAM-PUMP.—William W. Hanson, San Francisco, Cal.

GRATE-HEARTH.—John G. Iis, San Francisco, Cal.

### Editorial Notes Eastward.—9.

To have visited Salt Lake City, and to have seen the place of which so much has been said, where the wonderful works of religious zeal have wrought the most surprising change in the face of Nature and made "the waste places glad," would have been a great pleasure to me; but the nature of my errand to the East admitted of no such delay, and I hastened on toward the rising sun.

Soon after leaving Ogden we come to one of the most noted localities on the road. We ride straight for the tall barrier of mountains, through which we find, however, the Weber river has cleared a grand way for us. As we puff slowly up a steep grade, we see wonderful cliffs and buttresses of rock, lofty walls between which the river rushes frantically at our feet. We pass into the infernal regions, according to the nomenclature of the localities, for we have dashed out of the sunny plains into the "Devil's Gate."

We climb along the steep sides of the mighty walls, and are crowded from one side of the river to the other. We pass into and out of a tunnel, and by a noted rock, called Finger or Needle Rock, of which we hear, which we do not see, but which has been preserved by the skill of the artist. Natural obstacles present themselves every moment, but mortal skill has enabled us to overcome them.

On we go, winding under, around and through the stone obstructions of Nature, the scenery continually presenting new wonders. Here we see the Devil's Slide, two ridges of granite projecting as parallel, irregular slabs of rock from 50 to 100 feet high and about 100 feet apart. How his Satanic Majesty managed to slide down those rocks, and how he enjoyed it; whether he took it as a daily pastime, or whether one trial sufficed; these and other interesting facts are left to the imagination of the visitor.

That lonely sentinel of Nature, the One Thousand Mile Tree, sees us come and go unchallenged, and marks the place for our memory. The accompanying engravings are found, with others of much interest, in Crofut's Transcontinental Guide.

April 13, 1871.

### New Publications.

SIGN WRITING AND GLASS EMBOSING; A Complete Practical Illustrated Manual of the Art. By James Collingham. To which are added numerous Alphabets. Philadelphia: Henry Carey Baird, Industrial Publisher, 406 Walnut street, 1871. 8 vo. pp 210. Price \$1.50. For sale by A. Roman & Co., S. F.

This is a most excellent work, gotten up in fine style and containing most valuable matter for the interest of which it treats. It is said to be the first work which has appeared on the subject of Sign Writing,

personally. I know nothing of your education or capabilities. Some men with the requisite skill and capital would make a fortune out of the manufacture of wooden clothes-pins. I could not. Whether you could or not is more than I know. If you had a son you designed to put into mercantile life, you would not ask, Does it pay, hut, Will my son make a successful merchant?

More and more attention has been turned to farming of late years. Many are thinking of following the example of myself and

Thus our country has to this extent lost the benefits of this industry, which is larger in the value of its product and the number of hands employed than any other single industry in the country."

A most pregnant fact is the following statement: "The combined taxes upon all the articles forming the materials of our industry yield the government a revenue of only \$3,500,000, while they impose upon the manufacturers of boots and shoes a tax of \$18,000,000—which must eventually be paid by the wearers of these necessary articles."

"The system of protective duties raises the price of house-rent, fuel, food, clothing and all supplies, so as to render extravagant wages a necessity to our workmen. This apparent increase of wages, however, yields no substantial benefit to our workmen, because it is all consumed in the greater cost of living.

"We believe that the entire removal of all protective duties would greatly advance our industry, as we should then have the market of the world in which to sell our products, thus largely increasing the labor employed and the profits of manufacturing. We, moreover, believe that the enhanced wealth and comfort of our own people, consequent upon a change of system, would be evidenced in an increased consumption of our goods."

The wool manufacture at the East seems to be another industry which is being crushed by the tariff, and other manufactures are beginning to ask to be "protected against protection."

### RELICS OF THE STONE AGE.—

There are but few of the valleys in Arizona in which may not be

and takes precedence as treating of glass embossing. Such a book as this will be found of great value to many on our coast. It is full of valuable rules and hints, and we recommend it cheerfully. Beginners will find the book the greatest help, and

### A Protest Against the Tariff.

We have received "a protest against the tariff by the shoe manufacturers of the

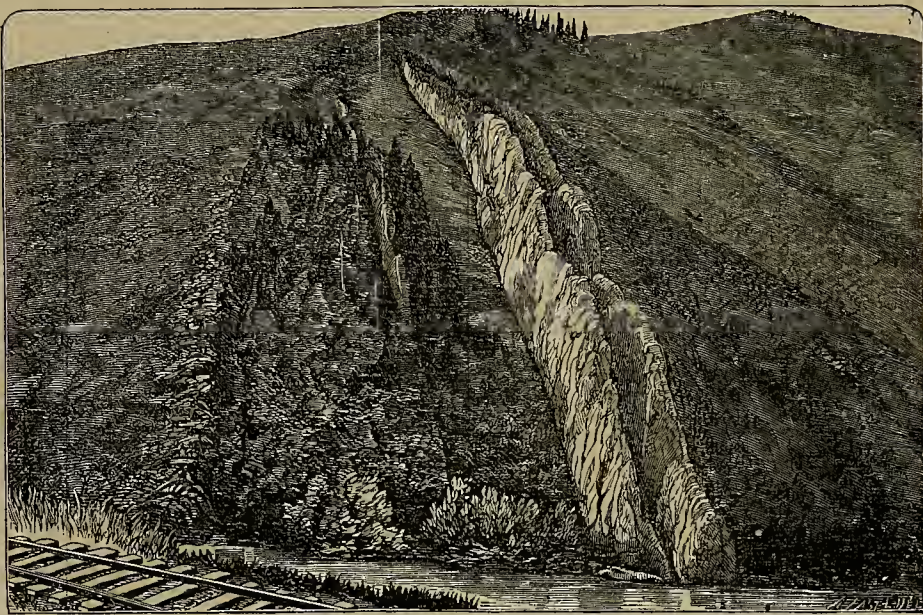
met with the remains of ancient art, which furnish abundant evidence that the country was once inhabited by a people who had attained a high standard of civilization.

Among the most remarkable of these relics, says the *Arizona Miner* of June 10, are those recently exhumed from a monument in the valley of Salt river, on the land owned by Mr. McKinnie. This gentleman has, for some time past, employed his leisure hours at excavating among the ruins which constitute the principal mound on his premises. At two points, after having removed the debris which covers the ruins to a depth of about two feet, he discovered a number of apartments, varying in dimensions from nine to eleven feet square, regularly built, and still containing the cement with which the walls are coated within. Besides various kinds of agricultural implements made from fragments of slate rock, he has obtained several stone hatchets and various kinds of ornaments made from different kinds of colored stones, shells and the bones and teeth of animals. It is quite probable that further research will lead to discoveries of much greater importance—as the work has thus far been confined to the extreme sides or edges of the mounds, and valuables would probably be deposited at or near the center. Mr. McKinnie intends sending a few of his most remarkable specimens to the Smithsonian Institute.

CALIFORNIA SHAD.—The Fish Commissioners of California, besides exerting themselves to protect and save valuable native breeds of fish, are laboring to introduce choice varieties from abroad. Their first experiment in this line is the deposit of 15,000 young shad, from the Hudson river, in the upper waters of the Sacramento. This river, at Tehama, where the young fish were placed, is comparatively clear, the branch streams that convey the mining discharges, entering it far to the southward. The water had been tested and found conducive to the health of the fish and full of food for their support, and there is every reason to believe that the young fish placed in it will prosper and multiply until our rivers are stocked with them. The habits of the shad are much like those of our native salmon. It descends to salt water periodically, returning to the upper channels of fresh streams to spawn.



FINGER OR NEEDLE ROCK, WEBER CANON.



THE DEVIL'S SLIDE, WEBER CANON.

even old hands will find very much of the greatest use to them.

GARDENING FOR MONEY. How IT WAS done, in Flowers, Strawberries, Vegetables By Charles Barnard. Loring, Publisher, Boston. 8 vo., pp. 345. Price \$1.50.

The author has managed to weave many valuable facts and figures into a story, which is told in an interesting manner. The picture of the farmer is held up in plain, practical colors, and the imagination is held in check by fact. The last paragraphs of the book are worthy of republication:

The question is often asked, Does farming pay? This is not a fair question. Does any business pay? Does boat-building, or soap-making, or carpentry pay? The question is not, Does farming pay, hut, Can you make it pay? This is something I cannot answer, seeing I do not know you

U. S.," and we make some extracts therefrom for the consideration of our readers.

"The legislation of other countries has aimed to secure for manufacturers and artisans the raw materials of their industry at the cheapest rates. The opposite system has generally prevailed in our country, and has retarded the naturally vigorous growth of our industries.

"The tariff tax upon our leather amounts to 35 per cent.; duties on cotton and silk rubber webbing are 35 and 50 per cent., respectively: on lastings and serges, 85 per cent. Although these highly protective duties have been levied for four years, they have succeeded in stimulating only two manufactures, who make these articles only in limited quantity and of too inferior quality to supersede the imported goods.

"The result is that the manufacture of our products has been transferred to a great degree to Canada, where it enjoys greater advantages and has fewer impediments.



## POPULAR LECTURES.

## Modern Historical Research.

[Prof. SWINTON before the MECHANIC ARTS COLLEGE Mechanics' Institute Hall, S. F. Seventh Series, Reported expressly for the PRESS.]

LECT. III. July 1.—In this, the last regular lecture of the course, Prof. Swinton gave a very interesting *resumé* of the methods and results of modern historical research. He traced rapidly the steps by which history has grown to be a science, and advance has been made from the national egotism and narrowness of the ancient Greek and Hebrew, to the broad ground of prevalence of general laws, which characterizes the modern historian. And the results of historical research, properly conducted, he claimed, were destined to influence morals, religion, and the life of society.

## Two Great Nations Discovered.

In his lecture, the Professor dwelt at length on the two great discoveries made about the beginning of this century—the disinterment of two great nations, of Egypt and of India, two or three thousand years older than the Greek. He showed how the discovery of the Rosetta stone, in 1799, during the French occupation of Egypt, gave the key-note to the whole reconstruction of Egyptian civilization, whereby the modern world learned that, 5,000 years ago, there lived in the valley of the Nile a race of a stable political organization, a high estate of civilization, with its own architecture and copious literature.

So too, the introduction among scholars of a knowledge of Sanscrit, the ancient religious speech of India, has taught of a race older by a thousand years than the oldest known monuments of the classics, and has given rise to the science of comparative philology. By this, moreover, is explained the resemblance of the classics to one another, and of the Teutonic, Slavic and Celtic languages; and it is shown how nations have migrated from Western Asia in early times—part eastwards to India, and part westwards to Europe.

While we have thus in modern times learned of the existence and history of nations thousands of years earlier than was before described in history, some geological discoveries, the finding of flint instruments in the French drift, have thrown the existence of man back over a space of time of which we have no definite measure, and which is counted not by years, but by thousands of years.

The Professor referred to the various auxiliaries to the study of history, as comparative philology, ethnology, physical geography, statistics, myths, ballads, traditions, etc.

## The Most Important Fact.

That fact which makes history a philosophy is the discovery of *progress* made continually from the earliest times. This is a modern doctrine, not to be found in Aristotle or his followers. The old idea was that order and progress are incompatible; the new idea is that they are inseparable.

The Professor gave several examples of the law of progress in language, morals, etc., but which has its most perfect illustration in science.

In conclusion, he pointed out the progress made in historical narration—how, in place of a mere pictorial relation, it has become a science showing the connection and relation of facts; how, in place of a description of a single person or nation, it treats of the whole of mankind.

## Succeeding Exercises.

At the request of very many persons, Prof. Swinton will repeat his lecture on War Correspondents next Saturday, (July 8), and on the following Saturday (July 15), the concluding exercises of the course will be held, when addresses will be made by President Durant, Rev. Horatio Stebbins and others.

A VALUABLE PAPER.—Our readers who are acquainted with the German language, will find the *Deutsch-Amer. Gewerbe u. Industrie Zeitschrift* full of interesting matter. In addition to the original articles, which are well written, it contains a summary of the various American technical journals, which gives in condensed form the most valuable items of the day in regard to mechanical and scientific progress, etc. Main office, 612 and 614 Chestnut Street, Philadelphia.

## The Philosophy of Ageing Wine.

In a late issue we made some reference to the different artificial methods of ageing wine, alluding more particularly to the process recently invented by Messrs. Neil & Constable, of this city, and promised to explain the philosophy of the same which we will now endeavor to do.

The fermentation of wine is due to the presence therein of certain living organic germs, similar to or identical with the yeast plant, and to the debris of other vegetable matter, and to gluten. The living germs—as of the yeast plant—are enopposed to live upon, and increase in quantity, by assimilating to themselves the particles of gluten. When these organisms are plentiful, the fermentation is active; as soon as they are entirely removed, fermentation ceases.

Wine undergoes its first fermentation very rapidly; but there still remains in the *new* wine a small quantity of organic matter, from which a second fermentation will eventually set in, if it is not removed. The object of all artificial means of refining is to remove these organisms. The *searing* of wine, and the harsh and unpleasant taste so peculiar to new wine, is due to the presence of these germs; the *ground taste*, as it is called, is supposed to be due to the gluten.

The second fermentation proceeds very slowly, especially when the wine is at rest, because of the insufficient access of air. The only air which can act upon wine when at rest is that which is absorbed slowly from the surface or still more slowly through the pores of the wood, and the small amount which is held in mechanical suspension in the liquid, at the time it is placed in the cask.

Wine which has been kept for a short time at the boiling point, in its packing vessel, filled full to the brim, so that the air held in mechanical suspension is all driven off, and the floating germs all killed, and the vessel then sealed up air tight, will not reach its second fermentation for a long time—generally not for years. New cider so prepared, as is well known, may be kept for a long time without change. If this work could be performed in an absolutely perfect manner, and the liquid so put up as to be absolutely air tight, no change would ever take place.

When wine is placed on shipboard and sent a voyage to sea, the air, by the constant agitation of the liquid, is admitted more freely to the fermenting germs, which consequently sooner become oxidized, and as soon thereafter as the wine is allowed to come to rest, they fall to the bottom as a pasty or flocculent kind of sediment, from which the wine may be easily drawn off, and is said to have acquired “age”—in other words it has become purified of the foreign substance left suspended in the liquid after the first fermentation. Various substances are sometimes placed in the wine to cause these impurities to settle sooner than they naturally would.

As we have already intimated, unless this aeration process is hastened by artificial means, it proceeds very slowly, occupying many years for its perfect work.

When this process is performed at a comparatively low temperature, nature is imitated perfectly, and the resulting purified wine may be depended upon as unchangeable; but the application of too high a degree of heat at the early stage of the process so changes the germ organisms, that the oxygen will not act perfectly upon them, and a second fermentation is liable to set in at some future time. The process devised by Messrs. Neil & Constable seems to meet the case more completely than any other, and if our premises are correct, its value to the wine interest of this State can scarcely be estimated. The grape grower will realize its value when he finds that by it he can produce as good a wine in three or four months from the picking of the grape, as he can by the usual process in as many years. We shall watch and report the progress of this invention, which will be put in practical application, and on a large scale during the coming month.

The process is extremely simple and inexpensive, and consists in merely agitating the liquor in a closed vessel, under two or three atmospheres, with a moderate degree of artificial heat.

## GOOD HEALTH.

## Rules of Health for Married Ladies.

Get up at 3 o'clock in the morning, clean out the stove, take up the ashes, sweep the front side walk, and scrub the front steps, nurse the baby, put the mackerel to soak, build the fires, grind the coffee, get out your husband's things to wash, see the shirt aired, boil the mackerel, settle the coffee, set the table, rouse the house, carry up some hot water for shaving to that brute of a lazy husband, and dry the morning paper. By this time you will have an appetite for breakfast. Hold the baby during the meal, as you like your breakfast cold.

After breakfast, wash the dishes, nurse the baby, dust everything, wash the windows, and dress the baby—(that pantry needs cleaning out and scrubbing)—nurse the baby, draw the baby five or six miles in the wagon for his health, nurse him when you return; put on the potatoes and the cabbage—nurse the baby—and the corned beef—don't forget to nurse the baby—and the turkeys—nurse the baby—sweep everything, take up the dinner, set the table, fill the castors, change the table-cloth—there, that baby wants nursing. Eat your dinner cold again; and nurse the baby.

After dinner wash dishes, gather up all the dirty clothes, and put them to soak; nurse the baby every half hour; receive a dozen calls, interspersed with nursing the baby; drag the baby a mile or two; hurry home; make biscuits, pick up some codfish, cut some dried beef. Catnip tea for baby's internal disarrangement; hold the baby an hour or two to quiet him; put some alcohol in the metre; baby a specimen of perpetual motion; tea ready; take yours cold, as usual.

After tea, wash up the dishes, put some fish to soak; chop some hash; send for some more sugar; (good gracious! how that sugar does go, and thirteen cents a pound!) get down the stockings and darn them—keep on nursing the baby—wait up till 12 o'clock, nursing the baby till husband comes home with a double shuffle on the front steps, a difficulty in finding the stairway, and a determination to sleep in the back yard.—Drag him up stairs to bed; then nurse the baby and go to sleep.

Women in delicate health will find that the above practice will either kill or cure them.

## Acidity of the Stomach.

Acidity of the stomach always arises from that organ not being able to digest, to work up the food eaten, to extract the nutriment which it contains, hence two results: First, the food decays, that is rots, becomes sour and generates a sour gas, which is belched up, causing a burning or raw sensation, located apparently at the bottom of the neck, or in that vicinity. Sometimes an acid liquid is generated and is belched up, and so very sour occasionally that it will take the skin off some parts of the throat, mouth or lips. Second, the food not being properly worked up, does not give out its nourishment, the system is not fed, and consequently becomes weak, the circulation becomes feeble, the feet grow habitually cold; the person is easily chilled, and dreads going out of doors; is happiest when hugging the fire, and takes cold so easily that the expression is frequently used, “the least thing in the world gives me a cold.” When such a condition is reached these colds are so frequently repeated that before one is cured another comes, and there is a perpetual cough which the most unintelligent know is the certain harbinger, the forerunner of consumption of the lungs.

When persons are troubled with indigestion, and one of its effects, acidity, the advice given in nearly all cases is to take something to correct the acidity, such as cream of tartar, soda, saleratus, ammonia, the ley of wood ashes, and other alkalies. These things correct the acidity, but the stomach gets no power of a better digestion; the effects as far as sensation is concerned are removed, but the system continues to thinuer and weaker; and with wasting of flesh being properly nourished; the man grows and strength, there is diminished power of circulation; the person becomes chilly, colds are taken from slight causes and at diminishing intervals, and before he knows it he has an annoying hacking cough, which too often ends in a wasting, fatal disease.

When acidity follows eating, it is always because there has been an error in the quality or quantity of the food eaten; the stomach could not manage it, could not perform

the work imposed upon it. The true remedy is to eat less and less at each meal, until no acidity is perceptible; or to change the quality of food; and in a short time the stomach, not being overtasked, gets time to rest, to recuperate, to get strong; then it digests more food, and digests it better, with the inevitable result of a more vigorous constitution, more power of endurance, more strength of body and greater elasticity of mind, more happiness and a spirit and energy to grapple with life's duties, which makes existence a pleasure.—*Hall's Journal of Health.*

## Philosophy of Bathing.

The following is from Dr. Mayo G. Smith, on the subject, and is worthy of consideration:

There are in the human body 2,700,000 glands and 7,000,000 pores, and but one per cent. of all perspirable matter consists of solid substances. The change in muscles, tissues and bones, occurs in from one to three years, and in the entire body in from six to seven years. If this old matter be retained, it causes disease—it is a real virus.

Some diseases are relieved almost instantly by opening the pores. Diarrhoea is frequently cured; matter from the mucous membrane is expelled through the skin; tobacco, opium and mercury have been thus exuded. Whatever through the skin the body can expel, it can absorb. Hold the end of your finger in spirits of turpentine—it is absorbed; goes through the system, and may be detected by its odor. Constant handling of arsenic has produced death by absorption.

A doctor relates an account of a gentleman in Barbadoes, who was in the habit of daily intoxication, and had constructed a tub, with a pillow to accommodate his head, and when in this state was placed therein, and the tub was filled with cold water, in which he reposed for two or three hours, and would then arise refreshed and invigorated. When his wife or family required him, they would wake him up by taking out the plug, and allow the water to escape, when he would pleasantly complain of the “loss of his bed-clothes.”

Dr. Brock, a student of Sir Ashley Cooper, once poisoned a dog, which immediately plunged into a neighboring river, and remained for some time with his body entirely submerged, after which he left his watery hospital and ran home cured. Dogs have been repeatedly cured of hydrophobia by holding them in water.

Thirst has often been relieved by immersion even in salt water, the salt probably being excluded during the process of transpiration.

At Charleston, during the epidemic, among several northern mechanics who had gone thither, but one escaped the prevailing fever, and he alone babbled frequently, and never slept at night in any of the clothes worn by day.

## Injudicious Early Rising.

One of the very worst economies of time is that filched from necessary sleep. The wholesale but blind commendation of early rising is as mischievous in practice as it is arrogant in theory. Early rising is a crime against the noblest part of our physical nature, unless it is preceded by an early retiring. Multitudes of business men in large cities count it a saving of time if they can make a journey of a hundred or two miles at night by steamboat or railway. It is a ruinous mistake. It never fails to be followed by a general want of well-feeling for several days after, if, indeed, the man does not return home actually sick, or so near it as to be unfit for a full attention to his business for a week afterward. When a man leaves home on business, it is always important that he should have his wits about him; that the mind should be fresh and vigorous, the spirit lively, buoyant and cheerful. No man can say that it is thus with him after a night on a railroad, or on the shelf of a steamboat. The first great recipe for sound, connected and refreshing sleep is physical exercise. Toil is the price of sleep. We caution parents particularly not to allow their children to be waked up in the mornings; let nature wake them up, she will not do it prematurely; but have a care that they go to bed at an early hour; let it be earlier and earlier, until it is found that they wake up of themselves in full time to dress for breakfast. Being waked up early, and allowed to engage in difficult or any studies late and just before retiring, has given many a beautiful and promising child brain fever, or determined ordinary ailments to the production of water on the brain.—*Journal of Health.*



# Scientific Press.

W. B. EWER, SENIOR EDITOR.

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NEW YORK OFFICE: Room 25, Park Row. W. E. PARTRIDGE, Editorial and Business Correspondent.

San Francisco:

Saturday Morning, July 8, 1871

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, July 5, 1871. Legal Tenders buying, 89; selling, 90. Gold in New York to-day 113½.

## Table of Contents.

New Tank Locomotive, Ill.; Hyde Road Steam- er; Lieut. Wheeler's Expedition.....	1
MECHANICAL PROGRESS.—Heliotype Process; Hydrostatic Weighing Machine; Pressure of Fired Gunpowder; Electrotyping; Imitation of Leather; Burning Locomotive Sparks; Tin- ning Cast Iron.....	2
SCIENTIFIC PROGRESS.—Diamagnetic Experi- ments; Oceanic Circulation; Nervous Atmos- phere; Protoplasm.....	2
Trip to Colorado; Ruhmkorff Coil; Battle Mountain, Nevada; Information Wanted; Mining Ditches at Smartsville; Lake Super- ior Silver.....	2
MINING SUMMARY; Mining Shareholders' Di- rectory; Markets.....	4, 5
List of Patents; Editorial Notes Eastward, Ill.: New Publications; Protest Against the Tariff; Stone Age in Arizona; Cal. Shad.....	6
Modern Historical Research; Ageing Wine; Good Health.....	7
Ideas About Locomotives; Cal. Silk Culture; Cal. Wagon Making.....	8
Academy of Sciences; Carbon Tool Points, Ill.: Door and Gate Spring, Ill.; Remfrey Sepa- rator.....	9
Domestic Economy; Apples as Food; Preserv- ing Figs; Receipts.....	10

**ASCENT OF MT. WHITNEY.**—After various trials, Mt. Whitney has at last been ascended. On June 22d, Mr. Clarence King reached the summit from the east side. This is the highest point in the United States which has ever been reached, as far as we have any definite information. The mountain is about 15,000 feet high.

**DON'T SHOOT PAPER WADS.**—The dry season is now fast approaching, and with it comes increased danger from fires, both in town and country. One of the most common causes of fires in the fields and woods, is the reprehensible habit of sportsmen in using for wadding, paper or other material easily ignited. The annual losses in this State from fires caused by the carelessness of sportsmen amounts to a very large aggregate. Gentlemen, buy patent wads or use leather, and you will, in a great measure, avert the danger complained of. The papers throughout the State will do a good service by calling attention to this matter.

**COPPER ON MT. ST. HELENA.**—The *Vallejo Chronicle*, says that, after years of exploration on the East or Lake Side of Mount St. Helena, a valuable copper vein has been discovered. The ore is, however said to be sulphate of copper. Does the *Chronicle* mean carbonate?

**THE Helena Gazette** urges the erection of redaction works at Helena, Montana. The *Gazette* generally knows what it is talking about, and its suggestion is therefore worthy the attention of the people there.

**A PAPER MILL** is talked of at Marysville to use the tule and cottonwood as raw material.

**CRESCENT CITY** has petitioned Congress for a break-water.

**EARTHQUAKE.**—Visalia experienced an earthquake shock at 12.54 P. M., on July 5.

## Ideas About Locomotives.

The iron horse is the horse of the period. From a batch of photographs lying before us, showing four different styles of Grice & Long's (Phil.) colliery and general traction locomotives, one is led rapidly to impressions touching the iron horse of the future, somewhat departing from the familiar old stack and truck, so orthodox in this country, that nothing else seems to have been deemed worthy of driving on rails for any purpose whatever.

A railroad or locomotive, we should well understand, is anything, from a quarry road, or an Alpine road, to a heavy lighting express on a level as smooth as glass, and adapted to 60 miles per hour.

Nor is speed the only criterion, for the C. P. R. R. trains on the slopes of the Sierra run 12 miles an hour, while the old Placerville stages on the westerly grade used to do the same.

The peculiar designs of Grice & Long's locomotives are meritorious for compactness, the whole machine being neatly mounted on four wheels including drivers. For local traffic, freight, grading, sand carriage, mining or quarrying or wheat transportation these locomotives appear to be well adapted.

Classing mules among locomotives, the object being in all cases to move freight, the following comparisons of working expenses made on an eastern basis in cash, are worthy the attention of freighters and merchants.

LOCOMOTIVE PULLING 15 CARS PER DAY.	
1 Engineer.....	\$3.50
1 Boy.....	1.25
Repairs, oil, fuel, &c.....	1.50
Total.....	\$6.30
MULES PER DAY.	
21 mules at \$1 per day.....	\$21.00
3 Drivers.....	6.30
Extra cost of keeping road in repair.....	2.00
Total.....	\$29.30
Leaving a balance of \$23 per day in favor of the locomotive.	
If we consider the first cost of the motors referred to, we find:	
Locomotive.....	\$3,000
50 mine wagons.....	6,250
1 siding, say.....	1,000
Total.....	\$10,250
21 mules at \$200.....	\$4,200
100 mine cars at \$125.....	12,500
3 "sidings" for passing trains.....	3,000
Total.....	\$19,700
Showing a balance of \$9,450 in favor of the engine.	

## California Silk Culture and Manufacture.

We clip the following from the *Bulletin* of the 26th inst.

Isaac N. Hoag, the Secretary of the State Agricultural Society, has just received the first order for State grown silk to be reeled into filature at the factory erected at South San Francisco. Three hundred and fifty pounds of silk in the cocoon was received from Sacramento on Saturday, and is now in process of reeling. The experiment will soon enable the California Silk Manufacturing Company to fix standard prices for the crude silk, as it shall be graded under the judgment of experience. The industry of silk growing will expand immensely and other silk manufactures will shortly spring into existence. We have been informed that the capacity of the factory at Bay View is only sufficient to manufacture between four and five hundred pounds of silk per week. This result would warrant an annual product of about 23,000 pounds of silk in the year. All converted into sewing silks, and silk trams and organdine for weavers. It is stated that a company of English gentlemen who have been waiting for the operations of this factory to get their materials therefrom, are now preparing to start their looms which they have imported from England. They intend to manufacture ribbons. In a little time all the silk textiles will be woven here.

The commendable efforts employed to bring into existence a manufactory of silk in this city, and which has now attained an almost successful accomplishment, should induce our wealthy capitalists to come forward and aid in the erection of silk weaving factories. We shall soon have among us a number of French silk artisans, drawn here from our newspaper notices of the adaptability of the climate for the growing and manufacture of silk, and also as a result of the Franco-Prussian war.

## Wagon Making in California.

Having made a comparative estimate of all the items of expense attending the manufacture of farm wagons in California and at the East, except the items of paint, coal and labor, we come now to the consideration of these.

For the information of those who have not read our former articles we will state here that on the items of iron and hard wood and the freight on the same, in the rough and in a manufactured condition, across the country, we have heretofore shown that the California manufacturer has \$16 advantage over the Eastern manufacturer on each wagon. If in the items yet to be considered that advantage is not overcome we may claim that the California mechanic instead of laboring under a disadvantage, as has been generally supposed, has really the advantage of his Eastern competitors.

First as to paint. We can only figure on the paint used on the running gear as the boxes of imported wagons are, as heretofore stated, built and painted here. The paint on the running gear of most farm wagons consists of English venetian red and oil, and a very little lamp black for sticking. The venetian red is imported from England to New York and to San Francisco at equal cost, the freight being the same to each place. The freight from New York to Chicago is \$15 per ton, and from San Francisco to Sacramento it is \$2.50 per ton. So that upon this item the mechanics of Sacramento and other interior California towns have the advantage of the mechanics of Chicago or South Bend. If any white lead is used in the paint, our mechanics can get that as cheap as they can get it at Chicago or South Bend. The Atlantic lead being manufactured in the vicinity of New York can be laid down in San Francisco at \$10 per ton freight, while it costs \$15 to lay it down in Chicago. Our linseed oil is grown and manufactured in our own State, but the price is regulated by the ruling price of the imported article. On this article our Eastern competitors probably have a very little advantage over us. However, the amount of paint used on each wagon is so little that a slight variation in the cost of the articles composing it, makes but a very small figure in the costs of the wagon; but whatever that figure may be we have shown it to be favorable to the California manufacturer. Two pounds of venetian red mixed with one pint of oil will paint the running gear of a single wagon. This mixture, in Sacramento, can be obtained of paint and oil dealers for eight cents per pound. So that it will be seen that the cost of the material in the painting of wagons is very slight. The labor is the principle item of the expense of painting a wagon. The expense of labor we consider under the head of labor.

## Coal.

We are informed by practical mechanics that it requires, on an average, just about one ton of coal to keep up the fires for ironing off six thimble-skein farm wagons. Good Cumberland coal is worth in New York, on an average, say \$10 per ton. The freight to San Francisco is \$10 per ton—making it cost the importers here, in bulk, a little over \$20 per ton. The cost to manufacturers here is, on an average, about \$24 per ton. The item of expense then for this article for six wagons, manufactured in California, may be put down at \$24, or \$4 for each wagon.

We are not positively informed as to the exact cost of the same article of coal in Chicago or South Bend, but will estimate it at a very low figure, so as to make no mistake in our favor, say \$6 per ton. This estimate will make the item of expense to the Eastern manufacturer for coal, on each wagon, only \$1, against \$4 to the California manufacturer—a difference of \$4 against

us. Deduct this from \$16, which stands in our favor as above stated, and we still have \$13 on each wagon in favor of the California manufacturer; or, in other words, he has \$13 margin over his Eastern competitors on each wagon.

## Cheap Coal.

Some of our mechanics have of late been experimenting with Australian coal, and find that though it is not equal to the best quality of Cumberland coal, still a good quality of the former is superior to a poor quality of the latter.

To persons accustomed to the use of the Cumberland coal it requires some considerable persevering experiments to learn how to use the Australian, but when its peculiarities are once learned, mechanics of great experience and ability assure us that it is very little inferior in quality, and, considering the price much more economical. The Australian coal can be laid down in San Francisco at \$10 per ton, and can consequently be afforded to our manufacturers at about one-half the cost of the Cumberland or Eastern coal. Coal mines are constantly being discovered and opened on the Pacific Coast, and we feel certain that within a very few years coal of the best quality will be afforded here as cheap as in any of the Atlantic manufacturing centers. This being the only item now in the way of equal facilities to our manufacturers, we think they should entertain no fears of final success in the competition for the trade of the Pacific which is now going on between them and their brethren east of the Rocky Mountains.

## Labor.

One of the greatest drawbacks to the manufacturing industries of the Pacific Coast, and especially of California, has heretofore been the high price demanded for labor. The time was when a man with pick, shovel and rocker could go into the mines, and by industry dig out from \$8 to \$16 a day, and average this the year round. Under such a state of things the manufactures could not of course be prosperous here, and importation was then all the rule. Repairing had to be done here, and for this work mechanics commanded prices in proportion to the value of labor devoted to mining pursuits. All this is now changed, and although it has been a hard and disagreeable road to travel, labor has been compelled to go down hill until now it is glad to find employment on terms as low as it commands at many places in the Eastern States. This is a great change from former flush times in California; but the sooner this change is looked square in the face and acknowledged and acted on as a matter of fact, the better it will be for all parties concerned, for the employed as well as the employer. The products of labor are worth no more here to-day than in Illinois or New York. The cost of living is no more, if as much. Then why should labor demand a higher price? Such demand results only to its disadvantage and to the disadvantage of the whole country.

We have before us a copy of the *New York Herald*, of March 19th, 1871, in which is given a list of prices paid for all kinds of labor in that city and vicinity, as reported by the free labor bureau of New York City. We quote the prices paid some of the mechanics, and ask a comparison with those paid to similar employments in this State.

Blacksmiths, per day.....	\$2.50 to \$3.00
Boiler makers ".....	4.00
Carpenters ".....	3.50
Cabinet makers ".....	3.50
Coopers ".....	3.00
Coch makers ".....	3.00 to 5.00
Engineers, per month.....	50.00 to 100.00
Mechanists, per day.....	3.00 to 5.00
Painters ".....	3.50 to 5.00
Wood carvers ".....	5.00
Wheelwrights ".....	2.50

The above is sufficient to show that the prices paid for mechanical labor in New York are fully as high, and if any difference, a little higher than are paid for the same kinds of labor in California.

We have now compared all the items of expense actually and directly involved in the manufacture of wagons in California and the Western States of the Atlantic slope, and find a margin still in favor of the California manufacturer to the extent of \$13 on each farm wagon. With these facts in our favor we are yet confronted with the stubborn and damaging fact that one half of the farm wagons sold in the State within the past year have been imported from the East. In our next on this subject we will endeavor to show where the trouble lies.



## Academy of Sciences.

## Minerals and Fossils.

The regular meeting was held last Monday. Mr. Hanks presented, from Mr. W. B. English, a specimen of potash alum from Silver Peak, Nevada, where it is said to exist in abundance in an old lake bed.

Dr. Blake presented a number of mineral specimens from near Humboldt River, Nevada, with fossil bones and casts. Concerning *amphibole* specimens given, Mr. Durand read a description. They occur as hexagonal prisms of two different systems of formation; are green and opaque, but fuse readily to a colorless glass; their granular appearance is not common, but resembles a variety of *peridot* described in Dana's Manual, p. 257.

## Undetermined Specimens—Indian Relics.

A letter was received from Mr. Dietz, of Victoria, V. I., relating to the supposed central stems of *Virgularia*, presented June 5th, and stating that they were fished up on the cod banks of Burrard Inlet, B. C. He offered to send more if wanted, and the Secretary was instructed to write for perfect ones in alcohol.

Dr. Bennet presented a mortar and a pestle of Indian make.

A plan submitted with regard to the meeting of the American Association for the Advancement of Science was referred to the Board of Trustees.

## Coast Terraces—Fossil Ship.

Prof. Davidson spoke of his measurements of the coast terraces from here to San Diego. He had found four principal elevations, from 20 to 150 feet high, running as far back as 6 miles from the present beach. They are highest at San Pedro, declining thence rapidly southward to San Diego, but slowly northwards to San Francisco. The curious mounds like those seen near Puget Sound were found well developed in spots along the whole coast.

Mr. Hanks stated that the object on the Colorado Desert, supposed to be a ship, does not prove to be such. Its resemblance to a vessel from a distance is, however, generally acknowledged.

## Obituary.

The following resolutions were adopted. "Resolved, That in the death of Gregory Yale, Esq., this Academy has lost an active, zealous and worthy member, one always ready to contribute his labor and his means to advance its purposes, and one whose amiable disposition and goodness of heart endeared him to his associates.

"Resolved, That these resolutions be engrossed on the minutes and a copy forwarded to the family of the deceased."

The Academy then adjourned.

## THE SULPHUR WORKS AT CLEAR LAKE.—

The Sulphur Works at Clear Lake, says the *Lower Lake Bulletin*, are now being worked to their full capacity. Hundreds of boxes filled with the refined article await transportation to Calistoga. All the teams that can be spared about here are diligently engaged in executing contracts for hauling. The demand for sulphur seems to be increasing. A curious cavern has been recently discovered in the sulphur hank, where subterranean roarings are heard and whence issue fumes that prevent one from entering. A horax spring has also been recently discovered in this vicinity that promises fair for further development.

**MINERS' CONVENTION.**—The Mining Bureau has called a convention of miners and persons interested in mining to assemble in Sacramento, in the Senate Chamber of the new Capitol, at noon on the 31st inst. Each county in California, Oregon, Nevada, Utah, Arizona, and Idaho is to be entitled to one delegate to be elected at the county seat on the 23d inst.

**VOLCANIC ERUPTION IN PLUMAS.**—The *Butte Record*, of June 24th says:—A. F. Blood, just returned from Plumas, reports the breaking out of volcanic eruption in Black Mountain, contiguous to Lassen Buttes. It is said to be vomiting, to the height of thirty feet, large quantities of lava, and emitting a bright flame visible to all the surrounding country.

## Carbon Tool Points.

The PRESS has from time to time spoken of the ever extending use of the diamond in the mechanic arts, and of the great intrinsic value of the imperfectly crystallized forms, called by some carbon diamonds, for various purposes. We have also spoken of the firm now represented by Mr. John Dickinson, of New York, which is said to be the oldest of its kind in existence, having been established in Europe in the last century, and since its foundation having been engaged in the manufacture of glaziers' diamonds and in cutting and working diamonds for all mechanical purposes.

On account of the irregularity of shape

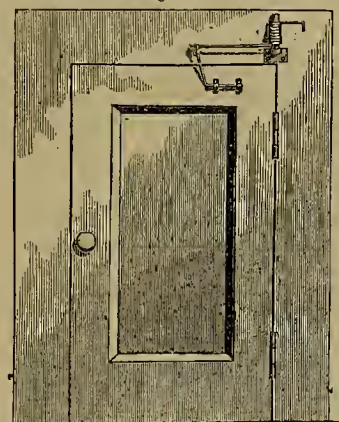


DICKINSON'S CARBON POINTS.

of the carbons and the trouble of obtaining exact cutting edges and of setting them securely, Mr. Dickinson has made certain improvements in their preparation for stone dressers and cutters, and for drilling, reaming, sawing, planing, carving, engraving and dressing various stones, metals, glass, china, etc., etc.

The advantages of these carbon points over the natural crystals or steel are claimed to be numerous, the most important

Fig. A.



NORTON'S DOOR SPRING.

being that, as they are more durable and do not require sharpening, by their being artificially formed into wedge, angular or other shapes, fewer of them are required; also they can be firmly and solidly adjusted in dovetailed seats or grooves in a holder with the greatest ease. The engraving represents some of the various forms to which the diamonds are ground for different mechanical purposes. These need not be specially enumerated here. Suffice it to say that their efficiency, economy and rapidity of execution are vouched for on good authority. The illustrated points range in size from one-sixteenth of a carat to ten carats each, a carat being equal to four grains. Their perfectness of finish depends upon the purpose and material to which they are to be applied. For metal they require to be sharper than for stone. The prices are fixed in accordance with their shape and finish. For his important improvements in the preparation of the points, patents have been granted to Mr. John Dickinson, 64 Nassau street, New York City, to whom apply for further information.

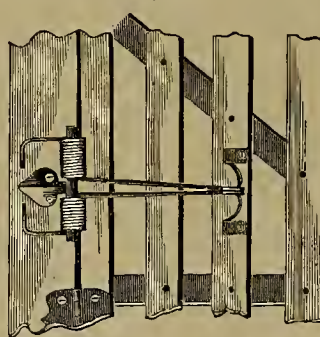
## A New Door and Gate Spring.

In our issue two weeks ago we made brief mention of a new door and gate spring, recently invented in the East, and now being introduced here by Mr. Geo. B. Davis, of Alameda, promising at an early day to give a fuller and an illustrated description of the same. This promise is now fulfilled, and the mode of constructing and operating the spring may be readily learned by examining the annexed engravings.

The object of this invention is to provide a more serviceable and reliable spring than has heretofore been presented for the purposes named. Of the many devices of

the kind hitherto in use there are none to which grave objections may not be made. One overloads the door with iron, presenting an unsightly appearance, another crowds the door too hard when open, and loses its force before it is closed, while others disturb us with creaking or rattling noises, etc., etc. The inventor of the spring herewith presented, claims to have essentially obviated all these objections, and to have brought out a device which,

Fig. B.



NORTON'S GATE SPRING.

for neatness and durability, cannot fail to commend itself to the public. It has a force nearly equal at all points, and while it allows the door to swing back against the wall, it will close it from any point, tightly, quietly and surely.

This spring may be seen in operation at the office of the agent, G. W. Blake, 305 Montgomery street. It may be made ornamental as well as useful, and may be plated or painted to suit the taste of the individual.

We understand that it has been submitted to most of the leading architects of this city who are almost or quite unanimous in their expressions of approval of it.

Fig. A. gives a general idea of the construction of the spring and the mode of its application to a door. The spring consists of a coil of spring-brass wire, working loosely upon a metal standard and secured to the door casing by screws. One end of the spring, which will be seen projecting from the upper right hand side of the coil,

rests firmly against the casing, while the opposite or lever end is hooked to an adjustable spring, secured to the door. Its working will be readily understood without further explanation.

Fig. B. represents the gate spring as applied to a gate. This is the same as the door spring, only double, being made with matched pairs of springs, right and left, and placed upon a double support, secured to the gate post, as shown. The lever arms rest on a swinging brace attached to the gate. These double springs are also adapted to heavy doors.

Mr. Davis owns the rights for all the States and Territories on the Pacific Coast. In anticipation of a large demand for the article, as is the case at the East, Mr. D. is making arrangements to have them manufactured in this city, and under his own especial supervision.

## The Remfrey Separator.

A machine called by the above name, and designed to separate, classify, and concentrate ores, minerals, or metals from their gangue, or from each other, according to their specific gravity, has recently been invented in Germany, and has attained great popularity among miners who have become acquainted with it. Large numbers of these machines are now in use in the Welsh, Spanish, and Sardinian mines, and several of them are now in operation at Tarnagulla, near Bendigo, in Victoria, where they are found to answer admirably for separating auriferous pyrites from crushed quartz, either during the process of stamping, or by dealing with the tailings. The Remfrey Separator is certainly effective in its action, simple in its construction, not liable to expensive wear and tear, and requires little attendance. In shape the machine is semi-cylindrical. It is made of plate-iron, about 6½ feet long, 3½ feet wide, and 3½ feet in height; divided into as many compartments as there are ores or minerals to separate, advantage being taken of the difference in their specific gravities, the heaviest being deposited in the first, and the lightest in the last compartment. The weight of the machine is 15 cwt., and it may be set upon wheels, or easily removed on an ordinary dray. It is well known that miners almost invariably wash away all the tailings from the batteries, although they are aware that in many instances the tailings contain a large amount of gold, both free and in the pyrites. Should, however, this machine prove to be what it is stated to be, miners will now be able to concentrate the auriferous pyrites during the reduction of the quartz; indeed, Mr. Pritchard, who has had large experience in quartz mining in Victoria, states that wherever auriferous pyrites abound in the stone, the machine should be fixed direct to the batteries (one machine to every six stamps), and that the use of the mercury and blankets should be dispensed with. In Britain this separator is chiefly used for separating the ores of lead and zinc. The stuff from the batteries flows over five sieves, through which the finer particles of gold fall into a receptacle beneath. In a compartment parallel to this, and extending the whole length of the machine, plungers are placed, which, making alternate strokes, give a pulsating movement to the water which flows over the sieves. This pulsation aids in drawing the heavier ores to the bottom, and the result is that not a particle of gold escapes.—*Sydney Mail*.

**FIRE.**—A disastrous fire, on July 4th, destroyed a third of the town of Yreka, and occasioned a loss, as reported, of \$300,000. This is a sad blow to the place. \* \* \* On the morning of the 5th, the smelting works of C. H. Swain & Co., at Truckee, were burned to the ground. \* \* Dunn & McCone's mill, at White Pine, was burned on the 4th.

**WATERSPOUT.**—On the 4th, a waterspout burst in the mountains, 14 miles west of Reno, washing away the track of the Central Pacific Railroad. The next train was thrown off the track at the place.

**THE STRIKE.**—The last reports, previous to our going to press, denote a disposition to compromise matters at Sutter Creek. We sincerely hope that the strike may soon come to an end. It is now causing a great loss, if not want, to the workmen.



## DOMESTIC ECONOMY.

We gather the following items on domestic economy from one of Kate Hunnicbee's late contributions to the *Hearth and Home*:

Some one asks how, with a baby a month old, a mother can find time to attend to flower beds, or other out-door matters. She is answered as follows:

"Have a little carriage, put a pillow in it, wrap up the baby warm, and while you work at the flowers, the little one will be breathing pure air—a hard thing to find in many dwellings. It is very easy to accustom children to passing many hours every day in the open air, and they are far less subject to colds, coughs, and other complaints, if they spend a part of every pleasant day under the blue sky. A carriage is as indispensable as a crib. If it is only a box with two wheels and some sort of a shade arranged over it, to keep the light out of baby's eyes, it may save a big doctor's bill."

### Breakfast Bill of Fare on the Farm.

The following is given as a list of breakfast dishes, which may come upon the table in the spring—to be varied some one morning, some another: Warm rolls, toast, fried mush, hominy, eggs boiled, scrambled, shirred or poached; fish, in its season, broiled or fried, cold corned-beef and ham, hash, beefsteak broiled, veal and lamb cutlets, rice cakes or flannel cakes, waffles and muffins. We farmers make great account of our pork barrel in spring, and of our hams. I often have fried pork for breakfast, and by way of variety, dip each slice into a batter of eggs, beaten up with flour, and then fry them. This makes an appetizing and nutritious dish, very good for workmen to plow on.

### How to Cook Salt Mackerel.

We use salt mackerel at breakfast, too; for the fish wagon seldom passes our door, and we are two or three miles from market. I am always careful, in removing it from the brine, not to let it touch the oil floating on the surface of the salt water, to wash it clean, and then soak it, with the flesh side down, eight or ten hours. Then I wash it, and soak it over night in sweet milk, and dry it by the fire. It is next broiled five minutes, flesh side down, over lively coals, turned so as not to break the skin, and left over the fire ten or fifteen minutes until done. Thus cooked, it can be eaten with zest by almost any one. Cod-fish, too, comes frequently on our table by way of variety. This is soaked over night in water to freshen it, then spread fine into sweet milk, scalded and thickened with flour or eggs.

### Tomato Toast

Is a favorite breakfast dish with my family. A pint of canned tomatoes, the same of sweet milk, plenty of butter, the whole brought to a boil and thickened a little with flour, then poured over bread nicely toasted—my boys and girls think there is nothing better.

### Fruit, Etc., for Breakfast.

Fruit of some kind is very desirable on the breakfast table, more so, I think, than at either dinner or supper. Everybody ought to indulge, at the morning meal, in cantelopes and muskmelons in their season, if they have to raise them in a barrel of rich earth in the back yard.

There is one dish farmers might enjoy every morning, and that is cream cheese. Let the whey be drained from lobbered milk through a colander, and the curd served with sweet cream and white sugar. There is nothing more delicious of a warm spring or summer morning than this.

### Dinner and Supper.

It is always easy to get up dinner and supper for a private family. For the latter good bread and butter, a plate of cold meat or dried beef, a little cheese, a bit of cake, a cup of tea or chocolate, is enough for ordinary occasions.

**TABLE CLOTHS FOR CHILDREN.**—A very neat and serviceable table cloth to spread under children's plates may be made by simply giving a piece of coarse muslin two coats of white paint. The first coating should be thoroughly dried before the second is applied.

**SWEEPING CARPETS.**—Persons who are accustomed to use tea-leaves for sweeping carpets, and find that they leave stains, will do well to employ fresh-cut grass instead. It is better than tea-leaves for preventing dust, and gives the carpet a very bright fresh look.

## Apples as Food.

We have several times referred to the excellence of apples as food, either raw or baked. There is no kind of fruit that enters into the various combinations of cooking which is superior to the apple. For pies, especially, there is nothing better, cheaper, or more healthy. Care, however, must be taken in making them, if you would have them really good and palatable. A very excellent cook book gives the following receipt, than which we have never seen a better:—

Peel and cut about two pounds of apples, tart ones being the best for that purpose; cut each into four pieces, removing the cores; then cut each quarter into two or three pieces, according to the size. Put half of them into a pie-dish, slightly press them down; put over them two ounces of brown sugar; put in the remaining apples; then add another two ounces of sugar, making the apples form a kind of dome, the center being two inches higher than the sides; add a small wine-glass of water; cover the top with paste, and bake in a moderate oven, from half to three-quarters of an hour.

And here is a receipt for making what may be called an apple cake:—Mix unholted wheat or rye-meal with cold water, making a dough or batter soft enough to nearly level itself. If shortening is desired, use sweet cream or butter. Fill a rather deep pie-plate about a third full of the batter, and sprinkle over a little sugar. Wash, quarter and core tart apples, and place as many in the batter (skin side up) as it will hold. They may be pressed down and leveled with a stiff spoon. Over the top sprinkle some sugar, and bake till nicely brown. This cake is both wholesome, nutritious and delicious. Children and grown folks can eat of it without danger of injury.

## Preserving Figs.

Now is the season for preserving this excellent and healthful fruit. The following directions are given for preserving them in sugar:—Take the fruit when not quite ripe. Soak for ten or fifteen minutes in weak, warm soda water to remove the skin; or peel thinly with a sharp pen knife. To one pound of figs use three-quarters of a pound of sugar. When the syrup is made, put in the fruit, and let it boil until half done; take them up and spread on a dish, and put in the sun. Let the syrup simmer slowly, always carefully removing any impurities that may rise to the surface. When clear, put in the figs; let them cook until transparent, taking them out separately when done. Set in the sun again; if the syrup is not clear, skim again; do not let it boil away too much. Put the figs in jars, and when the syrup is cold, pour it over them. Very small and thin-skinned figs, like the "Celestial," are better if put up without being skinned.

Will some of our readers who have had experience in drying figs furnish us with the manner in which they succeed best in so preparing them; also the variety of fig experimented with. We occasionally meet with California figs equal to any ever imported, but many are quite inferior. We would like to give a reliable method for the benefit of the public. We trust that some one who has made this business a success will be public spirited enough to communicate his experience for the benefit of others. California might and should furnish the entire Union with figs and raisins.

## Canned Meats.

Canned meats are coming into extensive use in New York and elsewhere at the East. A correspondent of the *Hearth and Home* says: "We have used several dozen cans of Texas beef in our family since last summer, and very much prefer it to the tough, flavorless, stringy steaks that are often all one can procure in our Busydale market. It costs only about half as much as that we get of the butcher, and is, on an average, fully twice as good. If day laborers, who must have a meat diet, could only be made acquainted with its value as food, they would buy it freely, and so get the worth of their money. For those whose teeth are imperfect, and for children who cannot be made to chew their food thoroughly, this meat cannot be too highly recommended.

## Domestic Receipts.

**TO 'CRYSTALLIZE' FLOWERS.**—Construct some baskets of fancy form with pliable copper wire, and wrap them, with gauze. Into these tie to the bottom violets, ferns, geranium leaves—in fact, any flowers except full blown roses—and sink them in a solution of alum, of one pound to a gallon of water. After the solution has cooled, the colors will then be preserved in their original beauty, and the crystallized alum will hold faster than when from a hot solution. When you have a light covering of crystals that covers completely the articles, remove the basket carefully, and allow to drip for twelve hours. These baskets make a beautiful parlor ornament, and for a long time preserve the freshness of the flowers.

**TO REMOVE STAINS FROM A BOOK.**—To remove ink stains from a book, first wash the paper with warm water, using a camel's hair brush for the purpose. By this means ink is got rid of; the paper must now be wet with a solution of oxalate of potash, or, better oxalic acid, in the proportion of one ounce to half a pint of water. The ink stains will immediately disappear. Finally, again wash the stained place with clean water, and dry it with white blotting paper.

**TO MAKE A GOOD MUCILAGE.**—The best quality of mucilage in the market is made by dissolving clear glue in equal volumes of water and strong vinegar, and adding one-fourth of an equal volume of alcohol, and a small quantity of a solution of alum in water. The action of the vinegar is due to the acetic acid which it contains. This prevents the glue from gelatinizing by cooling; but the same result may be accomplished by adding a small quantity of nitric acid. Some of the preparations offered for sale are merely boiled starch, or flour, mixed with nitric acid to prevent the gelatinizing.

**TO CLEANSE WOOL.**—Make a brine, take a pint of salt to a full pail of water or thereabout, heat it hotter than the hand can be held in it, but not to boiling; put in the wool, set it off from the fire, let it stand from ten to thirty minutes, as convenient; take it out to drain, as it will be too hot to wring, then wring it, saving the brine, as a painful may be used to cleanse fifteen pounds by heating over. Rinse in two or three waters; warm water is best.—Try this, and if you are not pleased with it I am mistaken, for many of my neighbors come to me to know how I cleanse my wool to have it so white.

## Mechanical Hints.

**AN APPROVED WHITEWASH.**—The following is sent out by the Lighthouse Board of the Treasury Department: "The following recipe for whitewashing has been found, by experience, to answer on wood, brick and stone, nearly as well as oil paint, and is much cheaper. Slake half a bushel of unslaked lime in boiling water, keeping it covered during the process. Strain it and add a peck of salt, dissolved in warm water; three pounds of ground rice put in boiling water, and boiled to a thin paste; half a pound of powdered Spanish whiting, and a pound of clear glue, dissolved in warm water; mix these well together, and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible, with painters' or whitewash brushes."

**DURABLE AND CHEAP WROUGHT NAILS.** We presume every farmer understands the usual method of making cut nails flexible by heating them; but if, instead of allowing them to cool in the open air, they are thrown when red hot into linseed oil, it will prevent their rusting almost as long as though they were galvanized. Those who have occasion to use cut nails instead of wrought, should not forget this simple method of preventing rust.

**POISONOUS PAINTED PAILS.**—The practice of painting the inside of wooden pails, to prevent leakage, is only to be recommended when the paint contains no white lead or baryta, both of which we found in the paint of some pails examined lately. All over the country these pails are used in the kitchen, and although neither lead nor baryta are very soluble in water, yet frequently the paint peels off in flakes, and may have serious consequences when getting into the tea-kettle, and thus into the food. Baryta is, however, much less injurious than lead. The paint for such purposes should be either whiting or gypsum, if required white; but most preferable is ochre, against which the sanitary objection cannot be raised. — *Manufacture and Builder.*

## LIFE THOUGHTS.

HE who sows brambles must look well to his shoes.

THE way to Babylon will never bring you to Jerusalem.

TO argue with an angry man is like preaching to the sea.

A horse is neither better nor worse for his trappings.

HE who wastes time throws away that he can never replace.

IT was well said by a Roman emperor that he wished to put an end to all his enemies by converting them into friends.

SHOULD misfortune overtake you, retrench, work harder, but never fly; confront difficulties with unflinching perseverance.

SEVEN years of silent inquiry are needful for a man to learn the truth, but fourteen in order to learn how to make it known to his fellow men.—*Plato.*

LIFE is too much for most. So much of age, so little of youth; living for the most part in the moment, and dating existence by the memory of its burdens.—*Alcott.*

RELIGION, if it be true, is central truth, and all knowledge which is not gathered round it, and quickened and illuminated by it, is hardly worth the name.—*Channing.*

## The World's Work.

Our external lives are not made up of great occasions, and our greatness is not in superhuman and exhaustive efforts, but in gradual growth, and this is nourished by little daily acts and sacrifices and efforts which call into exercise every faculty of soul and sense; and the lives which most deserve to be called sublime are those of which the world and history and poetry take little account. The lives of men and women around us are, for the most part, common-place, and we could not afford to have it otherwise. If all of them were reaching after occasions of rendering themselves sublime, how would the world's work be done? The world's work is tiresome, perplexing, uncongenial, and sometimes, and for some people, of necessity, it is very disagreeable and menial service, yet in the spirit in which this work may be conceived and carried forward to the end, there is a sublime purpose and consecration, he the end never so humble.

## Stand Like an Anvil.

BY BISHOP DOANE.

"Stand like an anvil!" while the stroke  
Of stalwart man falls fierce and fast;  
Storms but more deeply root the oak  
Whose brawny arms embrace the blast.

"Stand like an anvil!" when the sparks  
Fly far and wide a fiery shower;  
Virtue and truth must still be marks,  
Where malice proves its want of power.

"Stand like an anvil!" when the bar  
Lies red and glowing on its breast;  
Duty shall be life's leading star,  
And conscious innocence its rest.

"Stand like an anvil!" noise and heat  
Are born of earth and die with time;  
The soul, like God, its source and seat,  
Is solemn, still, serene, sublime.

**MAKE OTHERS HAPPY.**—Some men move through life as a band of music move down the street, flinging out pleasure on every side through the air to every one, far and near, who can listen. Some men fill the air with their presence and sweetness, as orchards, in October days, fill the air with the perfume of ripe fruit. Some women cling to their own houses like the honeysuckle over the door, yet like it fill all the region with the subtle fragrance of their goodness. How great a bounty and a blessing it is to hold the royal gifts of the soul that they shall be music to some, and fragrance to others, and life to all! It would be no unworthy thing to live for, to make the power which we have within us the breath of other men's joy; to fill the atmosphere which they must stand in with a brightness which they cannot create for themselves.

**THE GRAVE.**—It buries every error, covers every defect, extinguishes every resentment. From its peaceful bosom spring none but fond regrets and tender recollections. Who can look down upon the grave of an enemy and not feel a compunctive thro that he should have warred with the poor handful of dust that lies moulding before him?



## Business Cards.

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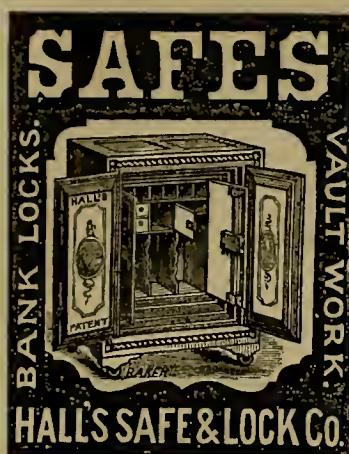
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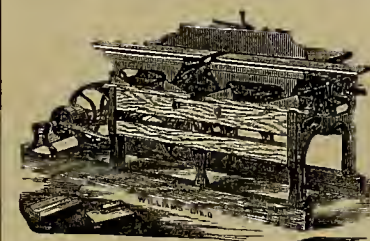
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American, July 24th, Nov. 20th and 27th, 1869; Engi-  
neering and Mining Journal, Jan. 17th, 1871; Journal of  
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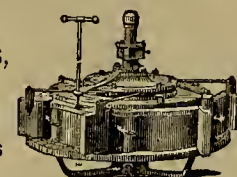
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Implements, Furniture, Sash, Blind, and Door Fac-  
tories, etc., etc. Send for Illustrated Catalogue and Price  
List.

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m4-cowly

## Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,  
ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of  
Railway Companies, and Engineers having charge of  
New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Via-  
ducts, etc., which they have either constructed or are  
prepared to construct. A copy will be mailed on appli-  
cation to our address, No. 410 Walnut Street, Phila-  
delphia. ap8-ly



The "PAIN KILLER" may justly be styled the great medi-  
cine of the world, for there is no region of the globe into  
which it has not found its way, and been largely used and  
highly prized. Moreover, there is no climate to which it has  
not proved to be well adapted for the cure of a considerable  
variety of diseases; it is a speedy and safe remedy for burns,  
scalds, cuts, bruises, wounds and various other injuries, as  
well as for dysentery, diarrhea, and bowel complaints gen-  
erally. It is admirably suited for every race of men on the  
face of the globe.

It is a very significant fact, that notwithstanding the long  
period of years that the "Pain Killer" has been before the  
world, it has never lost one whit of its popularity, but on the  
contrary, the call for it has steadily increased from its first  
discovery, and at no previous time has the demand for it  
been so great, or the quantity made been so large, as it is  
to-day.

Another significant fact is, that nowhere has the Pain  
Killer ever been in higher repute, or been more generally  
used by families and individuals, than it has been here at  
home, where it was first discovered and introduced. That  
the Pain Killer will continue to be, what we have styled it,  
THE GREAT MEDICINE OF THE WORLD, there cannot be the  
shadow of a doubt.—Providence Advertiser.

## Miscellaneous.



Of a far Higher Class than any other proprietary  
medicine of the day stands

Tarrant's Effervescent Seltzer Aperient,

And for this reason: it is an exact counterpart of one of  
the most valuable medicines in the world. We refer to  
the great Seltzer Spring of Germany, to which thousands  
of the dyspeptic, the bilious, the rheumatic, and the  
victims of vernal disease resort annually, and return to  
their homes convalescent or cured. The Aperient is  
one of the first, and by far the most successful, of all  
the efforts made to reproduce, in a portable form, the  
popular mineral waters of Europe. SEE THAT YOU  
PURCHASE ONLY THE GENUINE ARTICLE.

SOLD BY ALL DRUGGISTS.



7-30 GOLD LOAN

OF THE

## Northern Pacific Railroad.

RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (begun  
July last) is being pushed forward with great energy  
from both extremities of the line. Several thousand  
men are employed in Minnesota and on the Pacific  
coast. The grade is nearly completed 466 miles west-  
ward from Lake Superior; trains are running over 100  
miles of finished road, and track-laying is progressing at  
the rate of one to two miles per day. Including its pur-  
chase of the St. Paul & Pacific Road, the Northern Pa-  
cific Company now has 413 miles of completed road, and  
by September next this will be increased to at least 560.  
A GOOD INVESTMENT. We are now selling, and  
unhesitatingly recommending, as a profitable and perfectly  
Safe investment, the First Mortgage Land Grant Gold  
Bonds of the Northern Pacific Railroad Company. They  
have 30 years to run, bear Seven and Three-tenths per  
cent. gold interest (more than 8 per cent. currency), and  
are secured by first and only mortgage on the ENTIRE  
ROAD AND ITS EQUIPMENTS, and also on  
23,000 ACRES OF LAND to every mile of track, or 500  
Acres for each \$1,000 Bond. They are exempt from U. S.  
Tax; Principal and interest are payable in Gold; Denom-  
inations: Coupons, \$100 to \$1,000; Registered, \$100 to  
\$10,000.

LANDS FOR BONDS. Northern Pacific 7-30's are at  
all times receivable at TEN PER CENT. ABOVE PAR, in ex-  
change for the Company's Lands, at their lowest cash  
price. That is, in addition to their character as a first-  
class, prompt-paying Railroad security, these Bonds are  
in effect Land Warrants bearing a profitable rate of interest  
until exchanged for Homesteads, at TEN PER CENT.  
PREMIUM.

SINKING FUND. The Land Grant of the Road ex-  
ceeds Fifty Million Acres, having an average soil of  
great fertility, in a climate that is simply unsurpassed.

The Trustees of the Mortgage, Messrs. Jay Cooke and  
J. Edgar Thomson, are required to devote the proceeds  
of all Land Sales to the repurchase and cancellation of  
the Company's Bonds. This immense Sinking Fund  
will undoubtedly cancel the principal of the entire issue  
of First Mortgage Bonds (now selling) before they fall  
due. With their ample security and high rate of interest  
there is no investment accessible to the people, which is  
more profitable or safe.

EXCHANGING U. S. FIVE-TWENTIES. In view of  
the Government's expectation soon to call for the surren-  
der of its outstanding 6 per cent. Bonds, under the  
present movement for funding the debt at lower inter-  
ests, many holders of United States Five-Twenties are  
exchanging them for Northern Pacific Seven-Thirties,  
thus realizing a handsome profit, and greatly increasing  
their yearly income.

OTHER SECURITIES—AGENCIES. All marketable  
Stocks and Bonds will be received at their highest cur-  
rent price in exchange for Northern Pacific Seven-Thir-  
ties. EXCHANGES ON Money or Bonds received,  
on Seven-Thirties sent in return, will be paid by  
the Financial Agents. AGENCIES for the sale of this loan  
are established in nearly every city and important town  
throughout the United States and Canada. Full in-  
formation, maps, pamphlets, etc., can be obtained on  
application at any agency, or from the undersigned.

For Sale by

JAY COOKE & CO.,

Philadelphia, New York and Washington.  
Financial Agents Northern Pacific Railroad Co.  
By Banks and Bankers generally throughout the  
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## Manganese ! Manganese !

We have on hand the Best and Purest  
article of Powdered Black Oxide of Mangan-  
ese ever sold on this coast. Price, Sixty  
Dollars a Ton.

We also offer to consumers

## Acids, Sulphate of Copper,

CYANIDE OF POTASS,  
And Chemicals of all kinds at Lowest Prices.

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R. H. McDONALD & CO.,

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22v-17-3m

HOOKER'S Lift and Force.  
Improved  
DEEP-WELL Pump

112 and 114 California street, San Francisco,



Dewey & Co., U. S. and Foreign Patent Solicitors and Counsellors, Scientific Press Office. Principal Agency for the Pacific States. Established 1860.

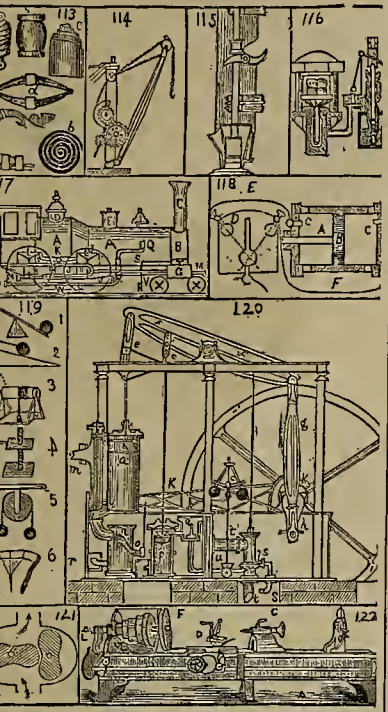


Plate V of Illustrated Mechanical Movements, described in Dewey & Co's, 48 page circular of Information for Inventors. Sent post paid on receipt of stamp.

Patent claims for Pacific Coast Inventors fully secured in less time than through any other agency in the United States, and at less cost. If you think you have a valuable invention, consult none but the best and most reliable counsellors. They will obtain a valid patent if new, or save you expense, if old, by giving you honest and intelligent advice. All business relating to patent soliciting transacted confidentially and thoroughly.

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Scientific and Practical BOOKS — ON — MINING, METALLURGY, ETC. BY GUIDO KUSTEL MINING ENGINEER AND METALLURGIST. Published and Sold by DEWEY & CO.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick-Silver, 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and contains full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore. It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit, by an author whose reputation is unsurpassed in his speciality. Price \$2.50 coin, or \$3 currency, postage free.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams, 1867. This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds in the most valuable facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864. As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator. Price, \$5 in cloth; \$6 in leather—coin. For single copies of the above works, or for the trade, address

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# Connecticut Mutual Life

INSURANCE COMPANY, OF HARTFORD, CONN. Incorporated 1846.

ASSETS, - - - - - OVER \$30,000,000.

Surplus over \$8,000,000, INCOME FOR 1869, - - - - - \$8,978,751 25

Appropriated for Dividends payable in 1870, \$2,300,000.

Total Claims by Death paid to date, over \$9,561,000. Total Dividends Paid to Date, over \$6,700,000.

Ratio of Expense to Total Income 8.89, Only.

A Purely Mutual Company.

All its surplus is equitably divided among the Policy-Holders in ANNUAL DIVIDENDS, Which may be applied in reduction of Premiums, or may be accumulated at interest for the benefit of the Assured, or may be received by them in Cash. Paid up Policies are granted after two or more years' Premiums have been paid, thus practically making ALL POLICIES NON-FORFEITING.

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SOLID SILVER HUNTING WATCHES as low as \$15. SOLID GOLD HUNTING WATCHES as low as \$65. Our Prices are all in Greenbacks, and we deal in none but GENUINE WALTHAM WATCHES. Every one who wants a Watch or feels a desire to be post-d, should write to us for our Illustrated History of Watchmaking. It will cost you nothing, as we send it postpaid without charge, and with it a full Catalogue of all the Watches with prices of each. When you receive this you will be surprised at the low rates, and you will then understand our plan of sending Watches to any place, however remote, without any risk to the purchaser. We send any Watch you order, and let you examine it before you pay for it. Do not order a Watch until you have first sent for the Price List, and when you write please mention the SCIENTIFIC PRESS. Address in full,

HOWARD & CO., Watchmakers and Jewelers, NO. 865 BROADWAY, NEW YORK. We have a full stock of extra heavy Cases, such as 4, 5, 6 and 8 oz., always on hand, and can fill all orders promptly. 26v1-bp-aw

MINING BUREAU OF THE PACIFIC COAST. Authorized by the Miners' Convention, held at Sacramento, January 31, 1871.

Parties desirous of having Mining Property REGISTERED and EXAMINED may apply personally or by letter to J. BERTON, Vice-Consul of France, President, Sacramento, Cal. Or to COL. HARRY LINDEN, Member of the Board of Directors, S. W. corner California and Montgomery streets, Room 3, San Francisco, Cal. Copies of By-Laws furnished upon application. 22v-18-1f

JOS. THORNHILL, BRICKLAYER AND CONTRACTOR. Particular attention paid to all kinds of Fire Work, such as Banners, Fireworks, Grates, Ranges, &c. Orders left with C. W. WHITE, 47 Clay Street, J. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

Sierra Iron Company—Location of Works, Sierra and Plumas Counties, California: NOTICE.—There are delinquent, upon the following described stock, on account of assessment levied on the 17th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows: Names. No. Certificate. No. Shares. Amount. L E Pratt.....14 500 \$300 00 L E Pratt.....15 500 300 00 L E Pratt.....16 500 300 00 L E Pratt.....17 500 300 00 Marv A Starkweather.....18 10 5 00 Jos B Starkweather.....19 10 6 00 Josephine Starkweather.....20 10 6 00 Herbert J Starkweather.....21 10 6 00 Mary E Sallory.....22 180 108 00 Mary E Sallory.....23 5 3 00 Mary E Sallory.....24 5 3 00 Mary E Sallory.....25 5 3 00 Mary E Sallory.....26 10 6 00 Mary E Sallory.....27 10 6 00 Mary E Sallory.....28 10 6 00 Mary E Sallory.....29 10 6 00 Mary E Sallory.....30 20 12 00 Mary E Sallory.....31 100 50 00 James S Dav.....29 50 20 00 R A Cochran.....32 500 300 00 R A Cochran.....33 500 300 00 R A Cochran.....34 500 300 00 R A Cochran.....35 250 150 00 R A Cochran.....36 250 150 00 F Sawyer.....37 50 30 00 Leverette S Davis.....56 300 180 00 G Hilton Scribner.....58 30 30 00 Thos Mansfield.....57 300 180 00 Wm Mansfield.....27 25 15 00 Wm Mansfield.....59 50 30 00 D J Sydow.....60 100 60 00 And in accordance with law, and an order of the Board of Trustees, made on the 17th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company No. 428 California street, San Francisco, on the 20th day of July, 1871, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. CALEB T. FAY, Secretary. Office, room No. 7, 428 California street. 26v22-3t

Taylor Mill and Mining Company—Location of works, Georgetown District, El Dorado County, State of California. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 27th day of May, 1871, an assessment of ten (10) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 12th day of July, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 4th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. SAM'L S. MURPHY, Secretary. Office, 527 Montgomery street, over Salber & Co's Bank, San Francisco, Cal.

BETT'S CAPSULE PATENTS. To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETT'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament but that they are serviceable in protecting the wine from injury, and insuring its genuineness. MANUFACTURERS:—1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

## Travelers' Guide.

### CENTRAL PACIFIC RAILROAD.

Passenger	Express	Train	May 1,	Express	Passenger
Sunday	Train	Daily	1871.	Train	Sunday
excepted	excepted			excepted	excepted
4.00 P.M.	8.00 A.M.	San Francisco	5.45 P.M.	12.30 P.M.	
4.42 P.M.	8.40 A.M.	Oakland	5.12 P.M.	11.38 P.M.	
5.30 P.M.	7.30 A.M.	San Jose	5.30 P.M.	12.15 P.M.	
7.38 P.M.	12.15 P.M.	Stockton	1.43 P.M.	8.35 P.M.	
9.35 P.M.	2.00 P.M.	Sacramento	11.45 A.M.	7.00 A.M.	
	4.10 P.M.	Marysville	8.10 A.M.		
	9.00 P.M.	Sesma	4.20 A.M.		
	2.20 P.M.	Sacramento	11.45 A.M.		
	5.25 P.M.	Colfax	8.45 A.M.		
	1.15 A.M.	Reno	1.00 A.M.		
	8.10 A.M.	Winnemucca	4.05 A.M.		
	12.00 P.M.	Battle Mountain	1.25 P.M.		
	4.40 P.M.	Elko	5.45 A.M.		
	6.10 A.M.	Ogden	5.15 P.M.		

SAN JOSE BRANCH.—LEAVE SAN FRANCISCO at 9.10 a. m. daily (except Sunday), and 3 p. m. daily. Returning leave San Jose at 7.30 a. m., daily, and at 3.50 p. m., daily (except Sunday). OAKLAND BRANCH.—LEAVE SAN FRANCISCO, \*5.50, 8.10, 9.1, 10.20 and 11.10 a. m. 12.00, 1.50, 3.00, 4.00, 5.15, 6.30, 8.30 and \*11.30 p. m. (10.20, 11.10 and 3.00 to Oakland only). LEAVE BROOKLYN, \*5.15, \*6.30, 7.40, 9.50 and 10.00 a. m., 1.30, 2.40, 4.55, 6.10, and 10.10 p. m. LEAVE OAKLAND, \*5.25, \*6.40, 7.50, 9.00, 10.10, 11.00 and 11.50 a. m., 1.40, 2.50, 3.50, 5.05, 6.20 and 10.20 p. m.

ALAMANDA BRANCH.—LEAVE SAN FRANCISCO, 7.20, 9.00, and 11.15 a. m., 1.30, 4.00, 5.20 and 7.00 p. m. (7.20, 11.15 and 5.20 to Fruitvale only). LEAVE HAYWARD, \*4.30, 7.00 and 10.45 a. m., and 3.30 p. m. LEAVE FRUIT VALE, \*5.25, 7.35, 9.00 and 11.20 a. m., 1.30, 4.05 and 5.30 p. m.

\*Trains do not run Sundays. T. H. GOODMAN, A. N. TOWNE, Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

### UNION PACIFIC RAILROAD.

Running from Ogden, Utah, to Omaha, Nebraska—over one thousand miles. Mailing

#### DIRECT CONNECTIONS

AT OGDEN with the CENTRAL PACIFIC R. R. (from San Francisco); also with the Utah Central R. R. to Salt Lake City.

AT CHEYENNE with the DENVER PACIFIC R. R., with connection at Denver City with the Kansas Pacific R. R. to St. Louis and Southern and Atlantic Cities.

AT OMAHA, for Chicago, Eastern and other cities, with the Chicago and Northwestern; Chicago, Rock Island and Pacific; Burlington and Missouri River; St. Joseph and Council Bluffs Railroads.

EXPRESS TRAINS RUN DAILY.—The U. P. R. R. use the Westinghouse patent air brake; Miller's patent trussed platform and elastic car coupler; and the most approved construction of cars for the comfort and safety of passengers.

PULLMAN'S MOST MAGNIFICENT SILVER PALACE Sleeping Cars attached to express trains. T. L. KIMBALL, General Passenger Agent, Omaha.

### PENNSYLVANIA CENTRAL R. R.

AND Pittsburgh, Fort Wayne and Chicago R. R.

—IS— 61 Miles the shortest line

From Chicago to New York. Three daily lines of Pullman's Palace day and Sleeping Cars, from Chicago

to Pittsburgh, Harrisburg, Philadelphia and New York

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Providence, Springfield, New Haven, Worcester, Boston. And is the most direct route to Washington City.

Express trains on this line are equipped with WESTINGHOUSE PATENT AIR BRAKES.

#### Booston and New England Passengers

will find this route especially desirable, as it gives them an opportunity of seeing the finest views among the Allegheny Mountains, besides visiting Pittsburgh, Philadelphia, and New York without extra cost.

\*All New England Passengers holding through tickets will be transferred, with their baggage, to Rail and Boat connections in New York WITHOUT CHARGE. Through Tickets via this great short route for sale in San Francisco, at 422 California street, 208 Montgomery st., 306 Montgomery st., and at Ticket office of Central Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne, Denver and Omaha. Be sure your tickets read via Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago route. J. R. ERRINGER, Jr., Gen'l Agent, San Francisco, Cal. 4v22-1y

### TRAVIS & WAGNER!

AGENTS FOR

Dufour & Co's., Celebrated Dutch Anchor brand Bolting Cloths; Smut Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Millstones repaired; rebuilt and of balanced. MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for Sanding Quartz. gr12v22-1yins

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### OCCIDENTAL Insurance Company

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ash Capital, - - - - - \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President. B. ROTHSCHILD, Secretary. 20v17

### AGENTS WANTED FOR THE YEAR

OF BATTLES, A History of the Franco-German War. By Brockett. Accurate, reliable and complete. The only one published. Send \$1.50 for outfit, and secure the best territory at once. Address J. W. GOODSPEED & CO., New York or Chicago. ap15-3m



## Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

## Aitona Gravel Mining Co.—Location of works, Alta Hill, Grass Valley, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment No. 2, of 25 cents per share, levied on the 23d day of May, 1871, the several sums set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
C W Boynton.....	20	200	\$50 00
C W Boynton.....	104	50	12 50
Aaron Hooper.....	117	200	50 00
R W Sterling.....	66	25	6 25
R W Sterling.....	68	20	5 00
R W Sterling.....	69	20	5 00
R W Sterling.....	72	19	2 50

And in accordance with law, and an order of the Board of Trustees made on the 23d day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at the auction room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Wednesday, the 15th day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale.

DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. 26v22-3t

## Eagle Quicksilver Mining Company—Location of works, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of June 1871, an assessment of twenty dollars per share was levied upon the mines of said Company, payable immediately in gold coin to the Secretary, to the Secretary, at his office, Room No. 5, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Wednesday, the 8th day of August, 1871, shall be deemed delinquent, and will be duly advertised August 12th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California.

## Latawana Mining Company, near Hamilton City, White Pine, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
D. M. Hosmer.....	11	10	\$ 2 00
D. M. Hosmer.....	14	50	2 00
Joseph Bromberg.....	15	1	1 00
Joseph Bromberg.....	78	100	20 00
Joseph Bromberg.....	57	2	40
J. A. Alexander.....	58	2	40
P. Conklin.....	196	200	40 00
P. Conklin, Trustee.....	210	100	20 00
P. Conklin, Trustee.....	211	50	10 00
P. Conklin, Trustee.....	212	100	20 00
P. Conklin, Trustee.....	213	100	20 00
P. Conklin, Trustee.....	214	100	20 00
P. Conklin, Trustee.....	215	100	20 00
P. Conklin, Trustee.....	216	100	20 00
P. Conklin, Trustee.....	217	100	20 00
P. Conklin, Trustee.....	218	100	20 00
P. Conklin, Trustee.....	219	100	20 00
P. Conklin, Trustee.....	220	50	10 00
P. Conklin, Trustee.....	221	17	3 40
P. Conklin, Trustee.....	222	20	4 00
P. Conklin, Trustee.....	223	50	10 00
P. Conklin, Trustee.....	224	50	10 00
P. Conklin, Trustee.....	225	50	10 00
P. Conklin, Trustee.....	226	50	10 00
S. E. Holcomb.....	127	10	2 00
M. M. Baldwin.....	134	10	2 00
M. M. Baldwin.....	135	183	36 60
E. W. McKinstry.....	202	168	33 60
E. W. McKinstry.....	208	300	60 00
A. P. Everett.....	269	75	15 00
John Clement.....	232	45	9 00
George A. Harris.....	171	100	20 00
George A. Harris.....	172	100	20 00
George A. Harris.....	173	100	20 00
George A. Harris.....	174	100	20 00
L. D. Simpson.....	233	50	10 00
E. B. Wilder.....	161	1000	200 00
John H. Boden.....	162	100	20 00
John H. Boden.....	163	100	20 00
D. W. White.....	168	100	20 00
C. H. Burton.....	268	164	32 80
Richard Brainard.....	170	100	20 00
Bots & Wise.....	249	400	80 00
George F. Dyer.....	177	100	20 00
John G. Ayers.....	248	66	13 20
T. G. Lamh.....	251	50	10 00
James Brooks.....	236	50	10 00
James Brooks.....	237	50	10 00
James Brooks.....	238	50	10 00
James Brooks.....	239	50	10 00
James Brooks.....	240	50	10 00
James Brooks.....	241	50	10 00
James Brooks.....	242	50	10 00
James Brooks.....	243	50	10 00
James Brooks.....	244	50	10 00
James Brooks.....	245	50	10 00
James Brooks.....	246	25	5 00
S. Heydenfeldt, Jr.....	270	50	10 00
S. Heydenfeldt, Jr.....	271	50	10 00
H. K. Drake, Trustee.....	272	100	20 00
H. K. Drake, Trustee.....	273	100	20 00
H. K. Drake, Trustee.....	274	100	20 00
H. K. Drake, Trustee.....	275	100	20 00
H. K. Drake, Trustee.....	276	100	20 00
H. K. Drake, Trustee.....	277	100	20 00
H. K. Drake, Trustee.....	278	100	20 00
H. K. Drake, Trustee.....	279	100	20 00
H. K. Drake, Trustee.....	280	100	20 00
H. K. Drake, Trustee.....	281	100	20 00
H. K. Drake, Trustee.....	282	100	20 00
H. K. Drake, Trustee.....	283	100	20 00
H. K. Drake, Trustee.....	284	100	20 00
H. K. Drake, Trustee.....	285	100	20 00
H. K. Drake, Trustee.....	286	100	20 00
H. K. Drake, Trustee.....	287	100	20 00
H. K. Drake, Trustee.....	288	100	20 00
H. K. Drake, Trustee.....	289	100	20 00
H. K. Drake, Trustee.....	290	100	20 00
H. K. Drake, Trustee.....	291	100	20 00
H. K. Drake, Trustee.....	292	100	20 00
H. K. Drake, Trustee.....	293	100	20 00
H. K. Drake, Trustee.....	294	100	20 00
H. K. Drake, Trustee.....	295	100	20 00
H. K. Drake, Trustee.....	296	100	20 00
H. K. Drake, Trustee.....	297	600	120 00
Thomas P. Hawley.....	302	250	50 00
David S. Terry.....	303	200	40 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of May 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, 614 Merchant Street, Room 26, San Francisco, California, on Tuesday the 11th day of July, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.  
Office, 614 Merchant street, Room 26, San Francisco, California. 25v22-3w

## BERRY &amp; PLACE, Importers and Dealers in MACHINERY AND SUPPLIES.

SAN FRANCISCO, CAL.

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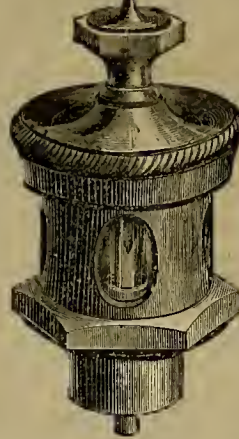
Blake's Patent Steam Pumps,  
Smith's Wood-Working Machinery,  
Davis & Furber's Woolen Machinery,  
The Swain Turbine Water Wheel,  
Wood, Light & Co.'s Machinists' Tools,  
Sturtevant's Pressure Blowers,  
Hardy's Portable Drillers,  
Dreyfus' Patent Self-Oilers,  
Gardner's Safety Stop Governor,  
Page's Belting, Etc., Etc.

We keep in stock the above, with a large variety of other Machinery and Small Tools.

## Dreyfus' Patent Self-Oilers and Cylinder Cups.

7 A saving in oil of 75 to 95 per cent. guaranteed. No trouble of "oiling up!" No waste of oil! No oil cans needed!

by the use of the



## NATHAN &amp; DREYFUS SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of  
75 PER CENT OF OIL.

They are composed of a transparent Glass Cup, mounted in Brass, provided with a hollow tube, inside of which is placed a loose setting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

No testimonials are printed, but ask any one who has them what they think of them. Be sure you get Dreyfus'. Send for Circular and Price List to BERRY & PLACE, San Francisco.

## GARDNER &amp; ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Governor Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. Thus we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either BLACK or FINISH. Send for Price List to BERRY & PLACE, San Francisco.

## Nathan &amp; Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages. First—Nothing but clean oil or tallow is admitted into the Cylinder; no time or money of any kind. Second—Its great economy of hot tallow and fuel. Third—It is self acting, and supplies the lubricating material only while the Engine is in motion. Fourth—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be instantly blown out at the exhaust (as must necessarily be the case), this Cup, by its peculiar action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the Cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

For further information, or Price Lists, address BERRY & PLACE, Importers Machinery and Mill Supplies, Warehouses, 112 and 114 California street, San Francisco.

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## PLANERS.

## DIMENSION

## PLANERS.

## PLANERS AND MATCHERS,

With Patent Expansion Feed Gears and other Improvements. Also, every description of the most improved

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Embracing Mortising, Sash and Moulding, Slat and Door Tenoning, Boring, Shaping, Scroll and Improved Band Sawing, Wiring, Mitering, Cut-off Sawing, Wood-Turning, Side-Jointing, Re-sawing Machines, and in fact every description of Labor-saving Machinery for Saw-Mills, Sash and Door Factories, etc.

A large assortment of Planer Knives, Saw Arrows, Knife Grinders, Moulding Heads, Mortising Chisels, Matcher Sets, Band Saw Blades, Saw Gauges, Door Clamps, Leather Belting, Sole Leather, Belt Studs, etc., etc., for sale at Eastern Prices, at the Machinery Depot of

21v22-1f

BERRY &amp; PLACE, 112 and 114 California St., San Francisco.

## Marcelina Silver Mining Company.—Location of Works, Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 2d day of June, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately in U. S. gold and silver coin, to the Secretary, Room 21, Hayward's Building, 419 California Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the 11th day of July, 1871, shall be deemed delinquent and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, August 1st, 1871, to pay the delinquent assessment, together with cost of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.  
Office, Room 21, Hayward's Building 419 California Street, San Francisco, Cal. 23v22-4w

## Mountain City Mining Company—Location of mines, Cope District, Elko County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of June, 1871, an assessment of Twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately in gold coin, to the Secretary, at the office of the company, No. 264 Front street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 15th day of July, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 8th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.  
Office, 266 Front street, San Francisco. 24v1-4w

## Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 30th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Adrian, Mrs E.....	135	100	\$50 00
Adrian, Mrs E.....	186	12	7 20
Bronley, John.....	22	1	60
Blake, H. H.....	236	5 3/4	3 30
Blake, H. H.....	236	7 1/2	46 50
Blake, H. H.....	214	27 1/2	16 50
Blake, H. H.....	301	50	30 00
Choate, N.....	250	1	60
Higgins, Chas.....	251	1	60
Hamilton, Jo.....	252	1	60
Hamilton, Jo.....	193	6 1/2	3 30
Janison, S.....	253	1	60
J mis n.....	254	1 1/2	30
Kip Jr, W J.....	237	500	300 00
Leahy, Joseph.....	255	3	1 80
Leshy, John.....	256	1	60
Miller, W E.....	187	32	19 20
Miller, W E.....	248	74	44 40
McMurray, M E.....	257	1	60
Patton, James.....	258	1	60
Patton, James.....	259	5	3 00
Patton, James.....	260	1	60
Ringer, John.....	261	1	60
Ringer, John.....	262	1 1/2	60
Stickles, F.....	263	1	60
Swain, W B.....	294	50	30 00
Swain, H C.....	295	50	30 00
Swain, Wm B.....	9	5	3 00
Swain, Wm B.....	8	24	14 40
Shofer, John.....	264	1	60
Streep, Chas.....	265	1	60

And in accordance with law and an order of the Board of Trustees, made on the 30th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, San Francisco, California, on Saturday, the 22d day of July, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. G. BRUSH, Secretary.  
Office, No. 314 California street, San Francisco, Cal. jul 8-3t

## Pinto Mining Company, Location of Works, Silverado, Pinto Mining District, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied May 24th, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Leopold Jacobi.....	1	60	\$ 7 50
Leopold Jacobi.....	from 2 to 32	50	193 75
A H Ward, Jr.....	111	805	100 62
Henry G Angley.....	171	1 610	20 25
John J Moore.....	213	1 610	201 33
Robert S Johnson.....	213	321 3/4	40 21
Erasmus Olsen.....	212	10,000	1,250 00
D B Arrowsmith.....	not issued	1,610	201 25

And in accordance with law, and an order of the Board of Trustees, made on the 24th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the 17th day of July, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.  
Office, 426 Montgomery street, San Francisco. 26v22-3t

## Salamander Gold and Silver Mining Company—Location of works, Leon's Ranch, Mill Valley District, Calaveras County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 4th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Jeremiah Dwyer.....	171	50	\$17 50
Jeremiah Dwyer.....	172	20	7 00
Jeremiah Dwyer.....	173	20	7 00
Jeremiah Dwyer.....	174	10	3 50
Jeremiah Dwyer.....	175	5 5-19	1 84
Christopher Dunker, Trustee.....	17	10	3 50
Christopher Dunker, Trustee.....	18	10	3 50
R. W. Dowling, balance of.....	315	80 5-19	29 00
Henry Grube, Trustee.....	223	20	7 00
Christopher Hahn.....	25	10	3 50
John Kahr.....	311	6	2 10
Johanna Lysett, balance of.....	88	1 8-19	50
James H. Morgan.....	31	10	3 50
James Murphy, balance of.....	241	10 10-19	3 67
James McConh.....	216	25	8 75
R. E. Ryan.....	216	5	1 75
Duncan Ross, Trustee.....	166	46	15 75
Duncan Ross, Trustee.....	239	10	3 50
Duncan Ross, Trustee.....	270	25	8 75



**Machinists and Foundries.****FULTON  
Foundry and Iron Works.****HINCKLEY & CO.,**  
MANUFACTURERS OF**STEAM ENGINES,****Quartz, Flour and Saw Mills,****Hayes' Improved Steam Pump, Brodie's Improved  
Crusher, Mining Pumps,  
Amalgamators, and all kinds  
of Machinery.**N. B. corner of Tehama and Fremont streets, above How-  
ard street, San Francisco. 3-47

ESTABLISHED 1851.

**PACIFIC IRON WORKS,**

First and Fremont streets,

SAN FRANCISCO

**IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.****Steam Engines and Boilers,**

MARINE AND STATIONARY,

**IRON AND BRASS CASTINGS**

Mining Machinery of Every Description,

And all other classes of work generally done at first-  
class establishments, manufactured by us at the lowest  
prices, and of the best quality.  
Particular attention paid to Jobbing Work and  
Repairs.N. B.—Sole Agents for sale of HUNTOON'S CELE-  
BRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.**MACHINERY**

—AT—

**GREATLY REDUCED RATES.****Miners' Foundry & Machine Works,**235 TO 245 FIRST STREET,  
SAN FRANCISCO.This Establishment is now working upon the  
**CO-OPERATIVE PLAN,**  
And are thereby enabled to manufacture**MACHINERY, CASTINGS & BOILERS  
AT EASTERN PRICES,**And better adapted to the wants of the Pacific States  
Ascertain our prices before purchasing. 8v20q**PACIFIC****Rolling Mill Company,**  
SAN FRANCISCO, CAL.Established for the Manufacture of  
**RAILROAD AND OTHER IRON**  
—AND—  
**Every Variety of Shafting,**Embracing ALL SIZES of  
Steamboat Shafts, Cranks, Piston and Con-  
necting Rods, Car and Locomotive Axles  
and Frames.**HAMMERED IRON**

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Orders addressed to **PACIFIC ROLLING MILL  
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prompt attention.

The highest price paid for Scrap Iron 9v143m

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SAN FRANCISCO.Manufacturers of  
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Shortest Notice. 23v22-3m**CAST IRON PIPE,  
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being made at the  
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STEAM DREDGES, STEAM PILE DRIVERS, MILL**

GEARING AND

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Messrs. G. & L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced  
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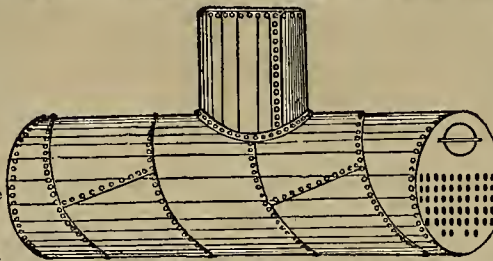
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Manufacturers of the

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DESCRIPTION

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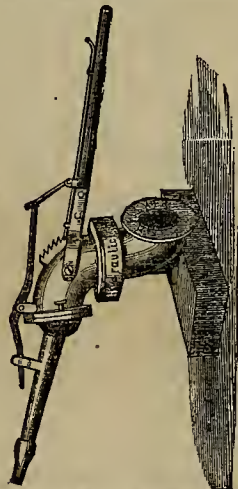
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is the Best Hydraulic Machine in Use.MACHINES MANUFACTURED TO ORDER,  
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have suits pending in the United States District Court,  
which involves the working principle of my HY-  
DRAULIC CHIEF, is false.I caution all miners to beware of the efforts of the  
said Craigs to intimidate my patrons or extort money  
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Corner of Beale and Howard Streets,  
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Wm. Norris, Joseph Moore, Chas. E. McLene,  
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JOSEPH MOORE.....Vice President and Superintendent.  
LEWIS B. MEAD.....Secretary.**UNION IRON WORKS,****Sacramento.****WILLIAMS, ROOT & NEILSON,**

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**The Stetefeldt Furnace.**For information of any description respecting this  
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Agent, nor has he authority to negotiate anywhere for  
the FURNACES, MACHINES AND PROCESSES OF  
WHEELLEY & STORER, nor for the STETEFELDT  
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Are prepared to make SHEET IRON AND ASPHALTUM  
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We purchase Ores, Bullion, etc. Ores worked and  
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Having added Flue, Assay office and Chlorination Ap-  
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make working tests by any process, assay ores and pro-  
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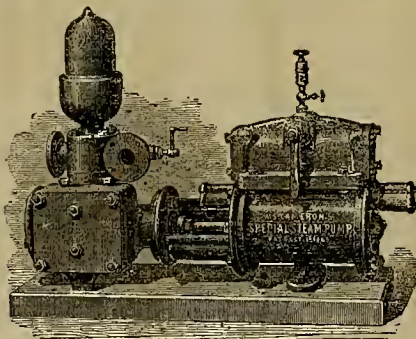
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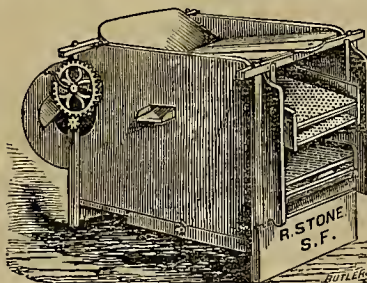
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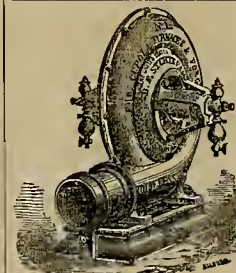
For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

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The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

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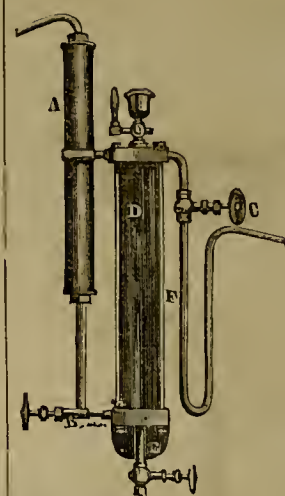
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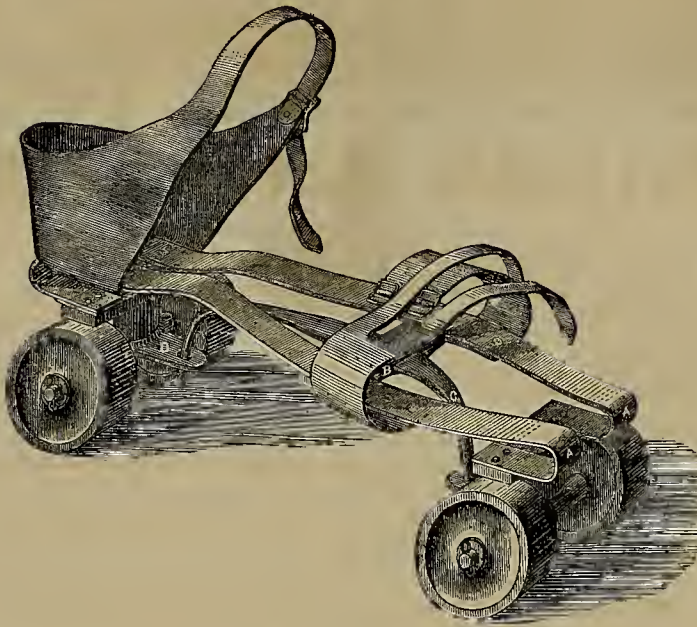
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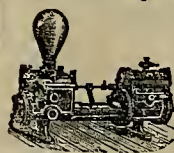
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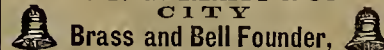
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SAN FRANCISCO, SATURDAY, JULY 15, 1871.

VOLUME XXIII.  
Number 2.

## Automatic Car Coupler.

It is impossible to read of the accidents constantly happening to brakemen and others while coupling cars, without wondering why some improved method of coupling has not been generally introduced. When we think that it is now upwards of forty years since the first successful locomotive was built, and that during that length of time the old method of coupling has continued in common use, the wonder increases. It is true that we have one or two devices applicable to passenger cars only, but they have met with no general adoption. Moreover, the great demand is for a coupler that can be put upon the freight cars as well as passenger cars. Upon the freight cars we have the greatest number of accidents and the greatest amount of time wasted in making up of trains.

Herewith we give side and top views of Vedder's car coupling, which is now being manufactured by the Self-Adjusting Car Coupler Co. of Gloversville, N. Y. This coupling gives immunity from accidents to brakemen, as they never have to step upon the track or between the cars in coupling. It is entirely automatic. The cars can be coupled as fast as the engine can back them up, an advantage which those who know anything of the time which is required in making up a freight train, will understand the value of. The construction is quite simple, and by means of the references easily understood.

Fig. 1 shows a top view, Fig. 2 a slotted link to couple with the ordinary huffers, and Fig. 3 a side view. *B, b*, huffer-hangers and stirrups; *e*, point of attachment of short disconnecting lever; *h*, hole for pin when using ordinary link; *K*, point of connection of levers, *L* and *T*, with grapples, *s, s*; *L*, disconnecting lever, which draws out the grapples *s, s*; *M*, head-block when coupling is not attached to center-plate; *m*, fulcrum for long lever, screwed into sill; *N, N*, bolts holding main following-block, *R*; *N', N'*, bolts which take the draught when the springs shut up under the strain; *r*, following-block for huffer-spring, upon which the spring keeps a constant pressure; *O*, bolts taking the strain in buffing when the springs close up—these bolts take the strain when the car is drawn by an ordinary link and pin; *P*, link; *p*, arrow-shaped head; *R*, main following-block, to which the jaws, *S*, are bolted by the bolts, *N, N*; *r'*, buffer-spring; *S*, side of jaw or grapples; *s, s*, jaws of grapples which hold the link; *s*, slot in link; *T*, short disconnecting-lever—draws out

one of the jaws, *S*; *W*, stringer, or sill of the car.

The above references make little description necessary. The jaws, *s, s*, are held together by the sides, *S*, which are of spring steel. These sides take the strain from the link and transmit it to the follower, *R*, where it is taken by the main-spring. The disconnecting is accomplished by the lever, *L*. When this is thrown over, by means of the short lever, *T*, and pieces, *K, K*, the jaws, *s, s*, are separated, allowing the buffer-block to throw the link out. This pressure is just sufficient to keep the link in position as shown in Fig. 3, ready to couple with any other car. The link is made of such a thickness that when turned upon its side it will slip between the jaws and disconnect, thus obviating any possibility of a car thrown on its side dragging

## Our Strongest Building Timber.

According to the *Alta*, late experiments at Mare Island show that yellow fir, preserved by hydro-carbon oils, is our strongest building timber, so far as known. Calvin Brown, Civil Engineer of the Mare Island Navy Yard, made a number of experiments, taking pieces of straight-grained wood, apparently without flaw or defect of any kind, one inch square and 36 inches long, resting on supports 24 inches apart, and then by weights attached half-way between the supports, ascertaining how many pounds were required to break the pieces.

The results were that California laurel broke under a weight of 387 pounds; oak, 413 pounds; and preserved fir, 462 pounds. The conclusion is that the fir is the strong-

## Interesting Mining Suit.

Last month an important decision concerning the Jersey quartz vein, near Hornitos, Mariposa county, was delivered in favor of the defendants. The *Mariposa Gazette* thus comments on the matter:

The reason of the public interest felt in the suit seems to be that it was understood that a prominent question involved in it was, whether according to mining rules and regulations, a miner has a right to enter upon a quartz vein upon public mineral land, and locate, and work and hold it, against a prior possessor, provided it has for many years been unused and unworked, and without such visible marks of improvement and claim as would reasonably show a design to use.

Early Thursday morning the jury rendered a verdict for the defendants, and judgment was entered accordingly. As, however, the question of what are the mining rules and customs was not the only one involved in the case, we are not informed whether the verdict was based wholly upon that point.

There are very many people in this county whose interests, present and prospective, are involved in the question most prominent in this action, and to whom it is important that mining regulations should be reasonably and clearly understood.

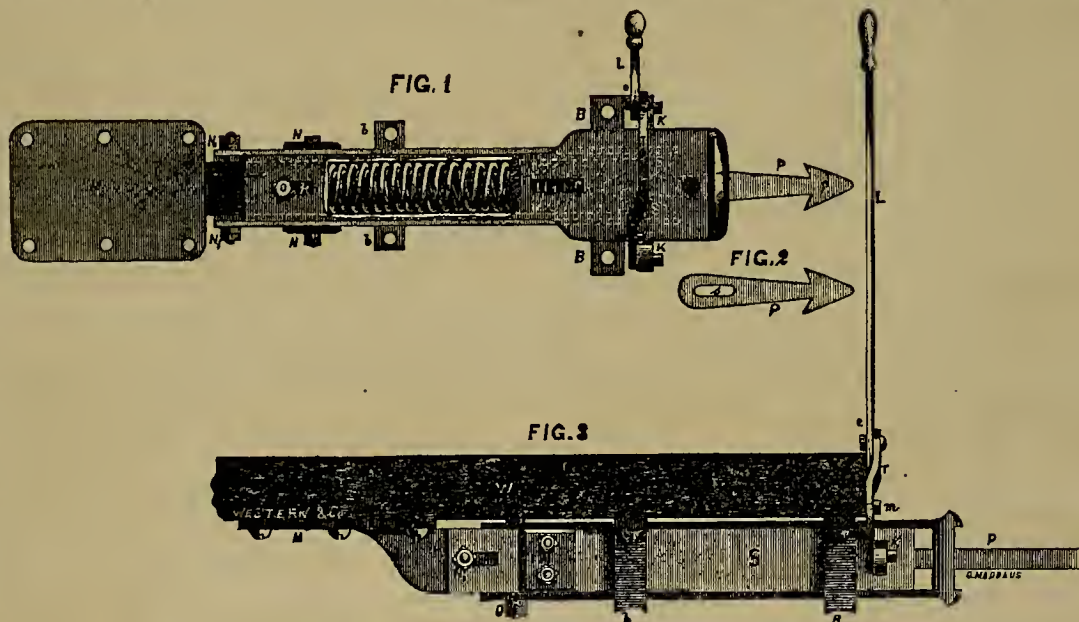
Canadian Pacific R. R.  
—Cal. Instruments.

Last week a corps of engineers, under charge of Messrs. Moherly and

McLennan, left this city for Victoria, to commence, on this side, the surveys for the proposed railroad from Montreal to the Gulf of Georgia. The building of so many transcontinental roads in the United States, and the desire to bind closely the different parts of the great country which acknowledges the same rule, and to aid in reviving trade and creating business, has stirred up the Canadian government in the matter.

A noteworthy fact in this connection is that the instruments to be used in the survey have been ordered of Mr. John Roach, of this city. It certainly is a remarkable compliment to this gentleman, and a source of congratulation to our coast, that the engineers of another country should come here for their instruments.

AN American journalist declares the breakdown of the two English Atlantic cables a "judgment" like that of Ananias and Sapphira, and for the same reason, namely, that their statements were often considerably in advance of the truth.



VEDDER'S IMPROVED PASSENGER AND FREIGHT CAR COUPLING.

the rest of the train further, while in form it gives a great surplus of strength over the ordinary link. This coupling is readily attached, and may be fastened without extra expense to any ordinary platform now in use. It possesses also the advantage of allowing a variation of ten inches in the height of the cars, and can be connected with any of the couplings now in use, either with its own links or those of the common kind. The cars are disconnected by a single motion of the lever, the handle of which comes to the side of the car, thus entirely obviating the necessity of the brakemen going between the timbers, and rendering any danger to him imminent only through gross carelessness.

This invention is in use on the Fonda, Johnstown, and Gloversville Railroad, and also on the Rensselaer and Saratoga Railroad. Both companies express themselves completely satisfied, and recommend it strongly. We have no doubt but that its adoption would prove a saving of time and money, and would tend to decrease the now too frequent number of accidents.

est wood. But as the paper alluded to dwells on the fact that by the preservation process some considerable increase of strength is attained, and as, apparently, the other woods were not thus treated (preserved), these results must be taken with some modification.

It is stated in this connection that the wooden platforms for heavy guns at Alcatraz, the Pavilion Hospital of the Navy Department at Angel Island, and the new breakwater at San Pedro are to be of preserved wood. It is also stated that Calvin Brown is preparing statistics with regard to the various kinds of building timber on our coast for the use of the Mechanics' Institute—information which will be of great value to the builders and the public generally.

A DREADFUL CATASTROPHE is reported from Mexico. At the silver mine of Quebrilla, one of the three great mines of the State of Zacatecas, a fire has occurred, by which over one hundred miners lost their lives.



## MECHANICAL PROGRESS.

**STEAM ON CANALS.**—The liberal reward of \$100,000 offered by New York State for the best system of canal propulsion, is attracting great attention at the East. We collate a few facts as to what has been done in late years in steam canal propulsion from the New York *Tribune*. In 1845, H. R. Worthington ran on the Erie canal for two seasons boats which, although unsuccessful financially, traveled at a high rate of speed without injuring the banks. The system of towing with wire rope, laid along the canal and passing over clip drums driven by engines on the boat, was introduced in Belgium in 1866, and is now successfully used in several places. The total cost is not one mill per ton per mile. The cost of paddle tugs on the Thames is  $9\frac{1}{2}$  mills, in France as high as 1.6 cents per ton per mile; of screw tugs on English canals,  $5\frac{1}{2}$  mills. There are various American patents. Among them are the following, which, however, have never been used practically. Mr. C. J. Harvey proposes to move small carriages, connected together by an endless rope working on a cable stretched on posts placed 20 feet apart on the tow path, the carriages having each a towing horn to which the tow-line from the boat can be attached. Messrs. Palmer, of Auburn, propose a chain on each side of the canal, lying along its bottom, into which fit cog-wheels on a shaft carried on the boat. Messrs. Emery & Leverich, of New York, propose a small steel rail suspended over the canal and grasped by two horizontal revolving pulleys placed on the boat. J. Read, of Catskill, substitutes for this a chain and cog-wheel working vertically. J. Roy, of New Orleans, designs using a moving cable on the tow-path, which pulleys, fixed to the side of the boat, will traverse. Narrow gauge locomotives and traction engines are proposed to replace animal power.

Worthington's boat was long and sharp in the bow. There was a wheel on each side of the boat (near the bow) with paddles inclined to the axis. M. J. Maiu, of Haverstraw, has a peculiar propeller in the bow, for which the present boats can be altered at a cost of \$650. Mr. Hunter has a similar device which can be attached at a less price. Both these have been in practical use. Mr. C. J. Smith, of Nyack, has a paddle made to open and close by iron rods connecting with the engine. The paddles are placed on each side of the keel at the stern, and near the bottom of the boat. At each forward motion the paddles close together, and at each backward motion they open, act upon the water, and propel the boat. Mr. E. Backus, of Rochester, proposes a wheel near the center of the boat, to roll on the bottom of the canal, and drive the boat as the driving wheels propel a locomotive. The wheel is placed, at the end of a lever frame, which can be raised or lowered as required by the varying depth of the water. These are the most prominent of the various plans proposed.

**PUTTING UP FENCES BY MACHINERY.**—A correspondent of the *Toronto Globe* writes, "I was lately much amused at a novel way of putting up fence posts. The implement employed was a 'pile-driver,' made as ordinarily used, with about twelve feet drop for the ram, but constructed of much lighter materials. The scantling was only 2x6 and 3x3 inches, with the exception of the sills, which were stronger, and made of hard wood, to facilitate moving about—an operation which was performed by the same oxen that raised the ram. The ram itself was composed of the butt of an oak log, six feet long, handed with iron at its lower end, and about sixteen inches in diameter. Grooves were plowed in it on each side, so as to admit of its moving readily in the guides. It was hoisted up by a yoke of cattle attached to a rope. About three blows drove the post nearly four feet into the earth, and almost all went quite straight. A few—one here and there—were crooked; but these, I was told, would be pulled straight with the cattle, or dug out at the foot, so as to allow of their being pressed over, until they all came in direct line. I was informed that this course was a great saving of labor, and when quickly handled, the time that each post required to be driven was only a few minutes."

**NAIRN'S STEAM OMNIBUS** lately made a trial trip from Edinburgh to Portobello, (Scotland) and back. The trip was considered satisfactory, and it is stated, that the owner of the omnibus intends running it daily.

**IRON BRIDGES.**—The Missouri will soon be spanned by six great bridges. Of these, two are completed, at Kansas City and St. Charles; two are approaching completion at Leavenworth and Omaha; two more will soon be commenced at Glasgow and at Atchison; and it is not improbable that still another will be built at St. Joseph. Over the Mississippi there are ten: the Rock Island, Clinton, Duquene, Burlington, Quincy and St. Paul bridges being already completed, while the St. Louis, Keokuk, Hastings and Winona bridges are in various stages of construction. The Ohio river is spanned by five fine bridges, located respectively at Cincinnati, Louisville, Parkersburg, Bellair and Steubenville, and another will soon be finished at Cincinnati. Across the Niagara river there are now two splendid suspension bridges, while the third, the great International Bridge, near Buffalo, is pushing forward as rapidly as the combined forces of capital and energy can make it. Over the Hudson there is already a fine bridge at Albany, and another is soon to stretch across from Fort Clinton to Anthony's Nose, opening a most important connection between the railroad systems of the Eastern and Middle States; while across the East river will soon be swung the great New York and Brooklyn suspension bridge. It is probable that the average cost of these mentioned has considerably exceeded \$1,000,000 each. The East river bridge will probably cost fifteen, and possibly sixteen millions before it is fairly completed; that at St. Charles cost about \$1,800,000; the St. Louis bridge is estimated at \$8,000,000; that at Kansas City cost \$1,200,000, and that at Leavenworth about \$775,000. A fair average would probably be somewhere about a million and a half for each of the great structures.

**AMERICAN TELESCOPES.**—In the manufacture of optical instruments, we are at this time leading all the nations of the earth. American microscopes, spectroscopes and telescopes are certainly superior to any made in Europe, and this is acknowledged by some of the best scientific observers of England and Germany. Tolles' and Wales' objectives are of the highest excellence, and none better have ever been produced. The telescopes of the Messrs. Clark, at Cambridge, stand at the head of all instruments of this class which are now made, and their orders, from parties at home and abroad, are much greater than they can promptly meet. These celebrated makers have recently received orders for two telescopes, of 25-inch aperture, which, when completed, will be the largest instruments in the world. The largest hitherto made has an aperture of 24 inches.—*Ex*

**COST OF PIG AND BAR IRON.**—W. E. S. Baker sends to the *Iron Age* a tabulated statement of the cost of manufacturing iron in Central Pennsylvania for each year from 1850 to 1871. According to this the cost per ton of pig iron was \$14.25 in 1850, rose gradually to \$18.87 in 1855, declined to \$16.11 in 1862, reached its highest point of \$32.21 in 1865, and is now \$29.65. Bar iron commenced at \$46.57 in 1852, rose to \$76.40 in 1855, fell to \$50.30 in 1859, reached its highest point of \$127.11 in 1865, and is now \$73.62.

**IMPROVED CEMENT.**—An exchange recommends the following as calculated to resist the effects of all solvents in use, and making a tight joint in machinery: "Ordinary commercial glycerine and well washed and dry litharge are to be thoroughly mixed, so as to form a stiff paste, which, however, must be used immediately, as it stiffens into a hard uniform mass in a brief space of time. For taking fine casts this substance is highly valuable, as it preserves the minutest detail and can be readily prepared for either receiving the galvanic deposit or used to cast from."

**STRENGTH OF IRON.**—The discussion as to whether the strength of iron is diminished by cold has led the *Iron World* to compare the reports published by the railway directors on the breaking of axles on German railroads from 1863 to 1869. The percentage is as follows: Dec. to Feb., 30.1; March to May, 22.6; June to Aug., 22.7; Sept. to Nov., 24.6. According to this, it appears that the breakage is more frequent in winter than in summer.

**PAPER.**—The latest application of paper is as lining for refrigerators.

## SCIENTIFIC PROGRESS.

**PROFESSOR TYNDALL ON "SOUND."**—Professor Tyndall, in delivering his sixth lecture, at the Royal Institution, on "Sound," began by stating that if the velocity of sound in wood were equal to its velocity in air, a rod of air in a tube, and a rod of wood of the same length, would both emit a note of the same pitch when they were made to vibrate longitudinally. But the velocity of sound in wood is much greater than its velocity in air. The lecturer then caused a column of air in a tube closed at its lower end, to vibrate longitudinally by blowing across the open end of the tube with his mouth, and thus the air gave a musical note. He then rubbed a rod of wood, 46 inches long, with a piece of leather covered with resin, and the wooden rod emitted a musical note of exactly the same pitch as that given by the shorter column of air. This proved that the velocity of sound through the particular kind of wood selected for the experiment was about sixteen times more rapid than through air. An open glass tube, twice the length of the other, was then sounded, and it gave the same note as the shorter one closed at the end; the speaker explained that this was owing to the fact that the air in the open tube divided itself into two vibrating segments, with a nodal point of no motion at the center of the tube, so that in fact the tube was virtually two closed tubes, placed base to base. A rod of brass, 72 inches long, was next sounded by the aid of the resined leather, and it gave a note of the same pitch as a column of air six inches long, contained in a glass tube closed at one end; hence the velocity of sound in brass is twelve times quicker than in air. The velocity of sound in iron may be determined in the same way; in brass the velocity of sound is 11,000 feet per second, and in iron 17,000 feet per second.—*Mechanics' Magazine.*

**UTILIZATION OF COTTON-SEED.**—Various movements have been made of late years looking toward the utilization of cottonseed, usually considered a burden to the cotton-planter, and in getting rid of which great ingenuity has been expended. Among the more recent propositions of the kind, that of the employment of the adhering cotton, and, perhaps, of the woody material, in the manufacture of paper, has been brought forward. Lately, large establishments have been started in the South for the purpose of obtaining the oil from the seed, the refuse being converted into oil-cake for fattening cattle. The crude oil brings in New York from thirty-five to forty cents a gallon, and the oil-cake commands nearly the price of corn, being said to equal it in its fattening qualities. Shipments of the seeds have been made recently in great quantity to Liverpool from New Orleans, one vessel taking over 10,000 sacks of the seeds, and about 1,000 sacks of oil-cake; and it is expected that these shipments will be followed up on a large scale. As over 2,000,000 tons of cotton-seed are every year produced in the South, we may well imagine how important it will be to our country should the whole of this now nearly waste substance be utilized in some form. The comparative value of winter refined cotton-seed oil and of olive oil may be gathered from the fact that at the latest dates the former is quoted in the New York prices current at 72 cents per gallon, while the latter with duty off brings only \$1 in gold.—*Agricultural Reporter.*

**A GAS TREE.**—Dr. J. H. Salishury, of Cleveland, Ohio, sends to the *Boston Jour. of Chem.* the following:—"In January last, Messrs. W. and N. Salishury, of Cortland Co., N. Y., went on to Mt. Topin to procure white oak lumber. Having selected a tree that would answer their purpose, they commenced chopping it down. The tree was two feet in diameter. When they had cut in about four inches on the east side, their attention was called to a peculiar sound issuing from the tree. Their first impression was that it contained a swarm of bees. On striking a couple more blows, the small chips and dirt commenced flying from the stump. On putting the hand down they discovered a strong current of gas issuing from a fresh crack in the stump. The odor was like that of confined air. This blowing continued for full five minutes, when for curiosity they applied a lighted match; to their astonishment the gas ignited instantly, and burned at least five minutes, with great heat, and a blue flame like that of alcohol. After the gas had all escaped

they finished chopping down the tree. They found a hollow in the stump about six inches in diameter. Their conclusion was, that the gas light was carburetted hydrogen, and had formed from the gradual decay of the wood. You can rely upon this statement, as being correct in every particular."

**THE GREAT TELEGRAPH NOVELTY** of the day, says London *Engineering* in its report of the Royal Institution Conversazione of June 6th, is Sir William Thomson's Syphon Recorder. It is a most marvelous combination of strength and weakness; and the strength and the weakness are so remarkably combined that it produces effects which, until its appearance in public, a few months ago, were totally undreamed of by the most sanguine of telegraph engineers. This instrument consists of a very powerful electro-magnet, between the poles of which (therefore in a magnetic field of great intensity) is suspended a core wound with fine silk-covered copper wire. This wire is put in the circuit of the telegraph line, through which the signals are received. The reading of the signals is effected by means of a syphon of capillary glass tube, about two inches long, the shorter end of which dips into a dish of ink, while the larger hangs down, in front of a paper strip moved forward by clock-work. The miniature glass syphon is connected by a very fine aluminum wire with the coil suspended between the poles of the electro-magnet, and is moved backwards and forwards as it is deflected to the right or the left. To persuade a camel to get through the eye of a needle would, under ordinary circumstances, not be a more difficult feat than to get ink through the capillary tube under ordinary pressure. But the way in which it is got through it, and not only got through it, but actually ejected in a tiny stream from the lower end of the syphon, is by the simple and ingenious expedient of keeping the ink electrified to a high tension. It is a well-known fact that, when any liquid is electrified, its particles repelling each other, it is enabled to flow through the finest orifice; and this fact, judiciously taken advantage of by Sir William Thomson, has enabled him to produce a frictionless pen-point. The electrification of the ink in the reservoir is done by a rotating electrophorus or replenisher, kept in movement by an electro-magnetic machine.

**HERSCHEL'S CHARACTER.**—The death of Sir John Herschel has called forth many tributes to his memory. One writer baving, however, declared that his great fault was a habit of flattery, which even affected his honesty as a critic and reviewer, and his manners as a gentleman, Prof. Tyndall thus vindicates his friend's memory:—"I think it was in 1854, and in presence of a Friday evening audience at the Royal Institution, that Faraday introduced me to Sir John Herschel. From that hour to this, through the advancing years, his character has grown in beauty to me. As I knew him better, respect ripened into reverence, and until I read the words of your correspondent, this feeling never encountered from the expressed opinion of others the slightest shock. During the past week I have sought to check and extend my data by reference to older men. I have conversed with many whose intimacy with Sir John Herschel extended far beyond the range of mine, and if their unanimous and indignant testimony be worth anything, I should hesitate to write the term that would most fitly describe your correspondent's quoted words. He may, perhaps, be able to make good his position, and he may even have the courage to give his name; but, as it now stands, I must regard his article, notwithstanding its apparent warmth of appreciation, as embodying the most conspicuous personal wrong to which anonymous writing has of late years given birth."

**THE SPHEROIDAL STATE OF LIQUIDS.**—From Leidenfrost's experiments, it seemed probable that a drop of water assumes the spheroidal state when the tension of the steam formed at its under surface is sufficient to support the pressure of the atmosphere plus the weight of the drop itself, and that, therefore, if the pressure be removed, a lower temperature must suffice to cause the phenomenon. E. Budde has proved this experimentally by means of the following apparatus: a glass bell jar was cemented on a copper dish standing in a water-bath; the bell was connected with an air-pump and exhausted, and by means of a simple arrangement a drop of water was brought on to the plate. It was found that when the pressure was reduced two-thirds more, the drop assumed the spheroidal state at a temperature of 83° C.—*Ex.*



## CORRESPONDENCE.

## Ageing Wine.

EDS. PRESS:—Your second article on the ageing of wine was read with much interest, as that has been to me a subject of considerable thought and study. Is it claimed as a new invention that wine can be improved or aged by motion and heat? I remember having read, over twenty-five years ago, of wine being sent in casks, to the West Indies, and the cask being slung to a frame made for the purpose, and then swung back and forth for time or until by exposure to the heat of the sun, with the agitation, a certain condition or improvement was produced.

I have now before me a work on wines, published in London in 1860. In the article on Madeira wine I find the following:

"Some seem to consider that heat and motion alone are sufficient to give the desired age, and I have heard of a cotton lord who used to sling his wines to the beams of his factory engines for a few months, and then pass off his wines as East India particular."

Heat and motion have been tried and no doubt thoroughly, and I think pressure has been recommended before, so that it is evident that we have something yet to learn in wine making or rather ageing wine. I must confess that I am skeptical of any process being found that will accomplish the desired object—except in a limited degree.

Grape juice is a very complicated liquid, and the changes that occur in it are but imperfectly understood. The chemist, Miller, says that, the ageing of wine depends partly on the gradual fermentation of sugar, and partly on the slow separation of saline matters, principally in the form of bitartrate of potassa, and the change of minute quantities of fragrant and aromatic ethers, supposed to be produced by the reaction of vegetable acids on the alcoholic part of wine.

Now we know that, the formation of a certain quantity of alcohol checks the fermentation; and we also know that a further change does gradually take place, resulting in improvement in the quality of the wine; and that change is ascribed to a slow continued fermentation, for want of a better or more accurately defining term.

The formation of the bouquet of wine, we can better understand from the method pursued in the manufacture of artificial fruit essences. That there are changes occurring in wine, other than those produced by fermentation, I can readily believe. The druggist has two methods of making tinctures, viz., percolation and maceration. By the first method the ingredients of which the tincture is to be made, are packed in the displacement funnel, and the liquid poured on gradually, and as it percolates downward, each fresh portion of the liquid displaces the preceding, all-ready saturated portion; now by this method the materials may be entirely exhausted, and yet the slower process of maceration (which is by allowing the mixed liquid and solid materials of which the tincture is to be made, to stand for some time before filtering off), makes, where aromatics are among the ingredients used, possibly not so strong, but a decidedly more aromatic and fragrant tincture. Apparently the different aromas are more perfectly blended together; and in making perfumes we notice the same blending, by time, of the various odors used, showing that some change is continually going on.

Now some similar action, no doubt, occurs in wine that produces the condition we call "age," after the rapid fermentation is checked. But can that condition be the result of fermentation? Can that chemical action, the result of which is the deposit of its contained salts, bitartrate of potassa and tartrate of lime, be called fermentation?

It seems evident that the condition of permanence may be obtained by the destruction or rather oxidation of the germs which are the active agents of any change or fermentation occurring in wine, and which germs are not all oxidized during the first or primary fermentation of the grape juice.

I would suggest, as an experiment that, on the occurrence of the succeeding fermentation thorough, systematic and

prolonged agitation be made by any suitable method so as to expose the wine to the action of the oxygen of the air, as rapidly as possible. No doubt the heat induced in the wine by the process of fermentation would be increased by the consequent rapid oxidation caused by the thorough and constant admixture of the air during the process, and the result of such action, at the higher temperature, would be the perfect oxidation of all matter susceptible of such change, and a permanent wine would be produced; provided, however, that the wine subjected to such action contained sufficient sugar to furnish the necessary quantity of alcohol; for unless the sugar is in sufficient amount, no process will make a wine of keeping quality—the acetous fermentation following rapidly the vinous in such cases. But I confess I am skeptical as to the possible amount of improvement by any quick process. A year or two of apparent age may be gained; but I doubt if the delicate and gradual processes of nature can be thus imitated.

VINO.

Sacramento, July 5th, 1871.

## Water Pipes for Domestic Service.

EDITORS PRESS:—There is a question in my mind which seems to be of sufficient general interest to warrant an answer through the columns of your paper.

What kind of pipe for conducting water for use in a family is the best, especially in the very important matter of health? All through the mountains lead pipe is almost universally used. In this vicinity the water is constantly flowing through the pipe into a reservoir. In such cases can the water be appreciably poisoned? Common gas pipe (iron) is also used, but if the water remains still, it often is colored with rust when drawn off. Will the pipe rust to hurt if the water is constantly flowing? When you inform us as to the best kind of pipe, if neither the common lead or iron pipe, please say if it can be got in San Francisco.

As health is the greatest physical blessing, it seems to me if lead pipe is injurious that the best substitute should be generally known. I have been told that the common galvanized iron pipe is worse for use than lead pipe; also galvanized sheet iron when used for tanks. Is lead pipe lined with tin any better? As our water all through the foot-hills is brought from springs in metallic pipe, the question is, what is best, as wooden logs are generally out of the question.

W. O.

Smartsville, June 10th, 1871.

The use of galvanized iron pipe is dangerous, and cases of poisoning are now well proved to have arisen from this article. Galvanized iron pipe is iron pipe coated with zinc. The zinc is changed by the action of most kinds of water to an oxide, carbonate or chloride, which are poisonous salts. We therefore warn our correspondent against the article either for conducting pipes or for tanks.

Lead pipe is the cheapest and most easily manufactured, and has often been used with impunity for long periods of time. But pure water has been shown to act quite energetically on it. Most waters, especially spring water, however, contain carbonic acid. The action is this: At first the lead is oxidized to a poisonous oxide of lead. If the water contains enough carbonic acid, this is changed further to the insoluble carbonate of lead, which coats the interior of the pipe, and thus protects it against further action. But organic or alkaline matter acts as a solvent on this carbonate. The gist of the subject is that lead pipe is not necessarily dangerous. But in order to be on the safe side, a chemical analysis of the water used is to be recommended. This will show whether it is safe or not.

Tin-lined lead pipe has no advantage over lead pipe, but the reverse is rather the case, as the combination of the two metals hastens the chemical action of the water.

Tin pipe, *i. e.*, of block tin, is safe. It is readily acted upon by some waters, but the salts are not poisonous. The pipe is, however, very expensive.

Iron pipe is perfectly safe. The only objection to it is that it rusts, is therefore not very durable, fills up, and, as our correspondent has remarked, often stains the water. But coating the pipe with asphaltum is said to protect against rust. Sections of iron pipe laid by the Spring Valley Company for conveying water to this city, which had been thus coated (by dipping in boiling asphaltum), have been found in excellent condition after lying ten years. Other material can doubtless be used with advantage.

## Circular Instructions.

TO GIVE EFFECT TO THE ACT OF CONGRESS APPROVED MARCH 3, 1871, DIRECTING DEPOSITS TO BE MADE FOR THE SURVEY OF PUBLIC LANDS, TO GO IN PART PAYMENT OF THE LANDS THUS SURVEYED.

DEPARTMENT OF THE INTERIOR,  
GENERAL LAND OFFICE, May 6, 1871.  
*Gentlemen:*—By an Act of Congress approved March 3d, 1871, entitled "An act to amend an act entitled 'An act to reduce the expenses of the survey and sale of the public lands in the United States,' approved May 30, 1862, the following became a provision of law:

"SEC. 11. And be it further enacted, That all such cases where settlers shall make deposits in accordance with the act, to the credit of the United States, for public surveys, such amounts so deposited shall go in part payment for their lands situated in the townships, the surveying of which is paid for out of said deposits, and effect shall be given to this act by regulations to be prescribed by the Commissioner of the General Land Office."

In order to gather the foregoing into effect, the following regulations are prescribed for your observance, viz:

When one or more settlers on public lands shall apply to the Surveyor General of the district within which such lands are situated, for the survey of a particular township, at his or their expense, that officer shall furnish to said applicant or applicants two separate estimates, one being the cost of the subdivisional survey of the surveyable portion of the entire township, and the other to cover the expense of platting the survey as required by the 10th section, act of May 30, 1862, and the resolution explanatory of the same of July 1, 1864. (U. S. Laws, vol. 10, p. 410, and vol. 11, p. 414, respectively.)

Settlers availing themselves of the provisions of the above quoted section shall deposit with a United States designated depository to the credit of the U. S. Treasurer, on account of surveying the public lands and clerk hire in the Surveyor General's office, in the district in which their claims are situated, the sums estimated as aforesaid, at the cost of the field and office work.

The Surveyor General will take precaution to estimate adequate sums, thereby preventing any deficiency in the payment of deputy surveyor, as well as for clerk hire involved in the service.

Where several settlers desire the survey of the same township, the necessary deposits to cover all expenses of the survey and platting may be so subdivided as to be proportionate to the amount of lands within the township claimed by each settler; this, however, is a matter to be regulated by parties applying for such surveys, but all applicants should be informed that the law makes no provision for the refunding of any excess of the deposit over the value of the lands taken; the excess, however, if any, over and above the actual cost of the survey in the field and office work will be refunded as heretofore under the resolution of Congress of July 1, 1864. (U. S. Laws, vol. 11, p. 414.)

No certificate of deposit can be received in payment by the Receiver for more than the cost of the land at Government price, and when the certificate is for more than that amount, the Receiver will indorse the amount for which it is received, and will charge the United States with that sum only, and not with the sum named on the face of the certificate.

Where the amount of deposit is, however, less than the cost of the land, the certificate will of course be received at its face value, and the remainder of cost of land paid for in cash.

Assuming that the estimated cost of survey (both office and field work) is \$850, which amount the party deposits, and the actual cost is \$800; the party will be entitled, under the act of July 1, 1864, to the \$50 thus deposited in excess of the actual cost of the field and office work; but he will not be entitled to the return of the \$600 deposited in excess of the Government cost of one hundred and sixty acres at \$1.25 per acre (amounting to \$200.)

If, however, there are several applicants, the amounts deposited by each can be equitably arranged among themselves, provided, of course, the aggregate deposits cover the estimated expenses of the survey and incidental clerk hire.

The Surveyor General shall distinctly state to the applicant that the application for survey and depositing of the money will give no preference right to the land where adverse claims exist and that all contests relative to lands applied for, whenever they arise, must be investigated and passed upon by a proper local land office

before pre-emption entry can be allowed or the deposit credited to the depositing settler, as the benefits conferred by the act of Congress, approved March 3, 1871, heretofore cited, inure exclusively to pre-emptors under existing laws.

In making his monthly and quarterly returns, the Receiver shall designate the lands in payment for which certificates of deposit were used by settlers under the law, describing separately in his receipts the amounts of such payments and the balances paid in cash, if any occur, crediting the United States in said returns with the acres and purchase money of the lands embraced by the class of entries alluded to, and debiting the same with the amounts of the respective deposits applied in payment therefore, as shown by the certificates of deposit which are to be sent up as vouchers with appropriate quarterly accounts.

Very respectfully,

WILLIS DRUMMOND,

Commissioner.

To the Surveyors General, Registers and Receivers.

## A Letter to the Secretary of the Treasury.

To the HON. GEORGE S. BOUTWELL, Secretary of the Treasury, Washington, D. C.

Dear Sir:—It is currently reported, and very generally believed, that Mr. Richardson, the Assistant Secretary of the Treasury, and Mr. Spinner, the Treasurer of the United States, are to spend the coming summer in Europe, there to assist in making arrangements for disposing of the new United States bonds to foreign capitalists.

If this be the case, is it not an acknowledgment, on your part, that there is in this country an inadequate supply of money? Certainly it is; for, if we have enough here, why send abroad to beg it in exchange for bonds, and pay to foreigners interest for its use? Making this acknowledgment, as you then clearly do, how can you logically and consistently avoid the conclusion that the time has now arrived when the country should have more currency? How can it be more readily or more cheaply obtained than by the government itself furnishing it? Why not, then, promptly and energetically advocate the reversal of the policy of your predecessor, Mr. McCulloch, and urge the reissue of the greenbacks which he retired?

It will, perhaps, be said that this is not the road to specie payments. Is your proposed policy such? Will you, with that policy, aid in the accomplishment of that result? Is an increase of our already enormous and alarming foreign indebtedness going to carry us forward a single step in that direction? Will it not rather retard us? and is the government doing its duty—is it following a wise policy in entering into competition with the railroad companies and those others who constitute the great army of American borrowers in foreign lands, and in forging additional chains wherewith this and future generations shall be held in financial bondage to European money lenders?

The government and the railroad kings having made up their minds that they will have more and cheaper money than the country has now to offer, I would most respectfully ask you whether, in your opinion, that point has not been reached where the people who also suffer for the want of an abundant and cheap supply of money, and cannot go abroad for it, should demand of their rulers that they also shall have more, and that it be furnished at home, and by the government itself? Why not yourself demand of Congress this addition to our currency as a means of heading off the wild scramble for European loans now fairly inaugurated, and threatening such disaster? Can so called "inflation" portend so great evils as a mountain of foreign indebtedness?

Most earnestly inviting your serious consideration of these interesting and important questions, I have the honor to be,

Yours respectfully,

HENRY CAREY BAIRD.

Philadelphia, 406 Walnut street, May 23, 1871.

NEW ENGLAND EARTHQUAKES.—W. T. Brigham states that, since 1638, 227 earthquakes have been recorded as happening in New England, and four previous ones are mentioned in Indian traditions. He thinks that probably there were once volcanoes in New England, and particularly in Connecticut. Prof. Dana dissents from this opinion.

MEERSHAUM is said to have been found in Patagonia.



## MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

### California.

#### ALPINE COUNTY.

**LEVIATHAN.**—*Monitor*, July 1st: We have continued good reports of developments in this mine, already proved one of the largest ore deposits in the country. Water has been a great obstacle in the way of sinking the shaft. Drainage through the lower tunnel is causing it to sink away about a foot a day.

#### AMADOR COUNTY.

**THE MINERS' STRIKE.**—*Dispatch*, July 8th: It was currently reported in Sutter creek last Monday night, that a compromise had been agreed upon between the strikers and mine owners, by which the miners were to resume their original positions in the several mines immediately after the Fourth; but, as they have not yet gone to work, and as the soldiers are still guarding the mines, we are inclined to think that there is something wrong somewhere. It is to be hoped, however, that the difficulty will be amicably adjusted hereafter long.

**A GOOD MINE.**—*The Ledger* of July 8th, says: The mine owned by Condo & Wilson, at Enterprise, in the northern part of this county, is proving very valuable. They are now down 125 feet, and as yet they have encountered no water. Three runs have been made on the rock, with a yield of \$15, \$16 and \$19 per ton. The mine is easily worked, and the vein increases in size as they go down.

#### BUTTE COUNTY.

**BULL CREEK MINES.**—*The Marysville Appeal* learns from Mr. William Campbell, just returned from the mines on Bull creek, a stream which empties into Butte creek, that he has relative at work there who speak in glowing terms of these mines. From the work of five men, for two and a half days, 48 ounces of gold were cleaned up. The gold is coarse, and worth from \$17.50 to \$18 per ounce. The "diggings" are surface, none of them being over eight feet to the bed-rock—a soft, shelly granite. The dirt pays from the top down, is easily washed and very free from large boulders. This company have secured about 300 acres by location and buying, all of which it is expected will pay. Want of water is the only drawback to the mines, the supply being very limited and unsteady. Extensive preparations will be made this summer for a successful mining season in the following winter and spring.

#### CALAVERAS COUNTY.

**QUARTZ OPERATIONS IN ANGELES.**—*Chronicle*, July 8th: We hear very flattering reports in reference to quartz mining operations in Angeles. The shaft in the Big mine is being sunk 100 feet deeper. As the work progresses favorable developments are being made. The mill is kept constantly running with good results. Eighty men are employed in and about the mine.

The Stickles lead and others in the vicinity are also being successfully worked. San Francisco capitalists are endeavoring to purchase several of the mines at Angeles, and negotiations are now pending.

#### EL DORADO COUNTY.

**GOOD NEWS.**—*Mt. Democrat*, July 8th: Georgetown is to have a new ditch—plenty of water is now a settled fact. The proposed size of the new ditch is from 10 to 12 feet wide on top, 8 feet wide on bottom, and from 4 to 5 in depth. It will have a carrying capacity of from 10,000 to 20,000 inches of water, miners' measure. The system of reservoirs located will supply 10,000 inches 400 days without the natural flow. By filling these reservoirs during the winter, there is no danger but the supply will be ample for the summer. The surplus water, after supplying the divide between the forks of the American river, will be taken to Sacramento, perhaps to San Francisco. The company will incorporate under the name of El Dorado and San Francisco Canal Co., with a capital stock of \$2,500,000. Next week they will commence on the final survey and location. The work will be under the superintendency of J. H. Crossman, Esq., assisted by D. B. Merry, surveyor. The parties in interest are pushing every branch with energy and a determination to success. They intend to have water at Georgetown by July next year.

#### INYO COUNTY.

**BULLION PRODUCT.**—Mr. M. W. Belshaw furnishes the *Independent* of July 1st with the following as the product of the Cerro

Gordo furnaces of V. Beaudry and M. W. Belshaw since Aug. 1st, 1870: "Number of bars made at Belshaw's furnace 23,680. Weight, 2,060,160 pounds. Days running time, 273; 14 days lost in repairing boiler, 14 days lost for want of water, and 31 days lost in repairs of furnace. Size of furnace 22 inches inside, and 8 feet high. Only one furnace.

V. Beaudry's furnace since October 1st, has produced 11,995 bars; weight, 1,019,575. Running time about 110 days. Size of furnace same as above.

A NEW MILL according to the same paper is being erected in Hot Springs District, three miles from Benton. It will have 10 stamps, and a Stetefeldt furnace—all first-class; San Francisco Capitalists are the proprietors.

**SILVER SPROUT.**—This company are about to let a contract for running a tunnel 600 feet in length, on their mines on Kearsarge mountain, to tap their principal ledges.

**THE UNION MINE** is making preparations to sink a shaft upon their ledge, which is situated in the Inyo range, about two miles south of the Eclipse.

**WATER TURNED ON.**—The four-mile water ditch of the Eclipse company is now completed, and the water turned on. Much credit is due.

**STARTED UP.**—Beaudry's furnace was again started up week ago last Wednesday, and in the first 24 hours run out 114 bars of bullion.

#### NEVADA COUNTY.

**MINING LOCATIONS.**—*The Nevada Transcript* July 6th, says that Peter Mulligan & Co. have located 1,600 feet on a quartz ledge on Mary's Ravine, in Grass Valley township, adjoining the claims of Con. Reilly & Co., and near the Ophir Mill.

The same paper says that W. H. Talbot and others have located ten claims of 100 feet each on the Buckeye Ledge on Dead Man's Flat, Rough and Ready Township.

#### PLACER COUNTY.

**THE WESKE MINE.**—*The Auburn Stars and Stripes* of July 6th says that the Weske claim, at Turkey Hill, a short distance above Michigan Bluff, yielded \$4,033.50 for the week ending June 26th, and \$4,404.25 for the week ending July 1st, giving a fraction over \$23,000 for the four weeks ending with the latter date.

The Yule claim, at Startown, two miles above Last Chance, yielded a fraction over one hundred and two ounces for the week ending July 1st, and dividends exceeding \$6,000 for the month of June. The Weske dividends exceeded \$20,000 for the month. We claim that in the Weske, Yule and Baragon, Placer county can boast the three richest gravel and cement claims in California, and that the Gresne, St. Patrick, Ophir and Rising Sun are unsurpassed for rich quartz.

**THE DILLON MINE.**—This mine, says the *Placer Herald*, has been put in good working shape by the erection of power pumps, hoisting works, &c. The shaft has been pumped out and is now down to a depth of near 60 feet, at which point the full ledge, 3 or 4 feet thick will be shown in the bottom of the shaft. This ledge, so far as worked has been very rich, all the rock taken from it having averaged by mill working something over \$80 to the ton. The claim belongs to three working miners, John Dillon, Jacob Cowan and P. Hines, but from present appearances they will soon have to drop the pick and shovel and turn their whole attention to hosing the mine and taking care of their money.

#### SIERRA COUNTY.

**NEW MINE BEING DEVELOPED.**—*Messenger*, July 8th: Some time since Dr. Biber, in the interest of capitalists at San Francisco, discovered a quartz ledge in the ravine just below the watering trough on Goodyear Bar Hill. Men were set to work and the result was a ledge 12 feet wide and prospecting well. O'Neal and Livingston, two of the owners, are now here to take measures for erecting a quartz mill on the ledge.

**THE UNION CLAIMS.**—The same paper gives, through a correspondent, the following:—The Union claims, F. Cassidy, Foreman, are working from 30 to 40 men. Length of main tunnel 3,000 feet. An improved apparatus (not described) is used for dumping cars. The dirt is brought up the incline by a water-wheel. The cars in the mine are drawn by mules, and delivered, by contract, at 5½ cents per load; 60 loads per shift are taken out. Daily gross receipts from \$500 to \$700, expenses, \$100. The claim has been worked since 1855, and \$150,000 were expended before any dividend was declared.

**THE EAGLE CLAIM.**—The Eagle claim, just above Port Wine, reported as "played out" a couple of years ago, is now paying wages, with prospects of paying better

after a while. T. T. Davis is foreman, and under his direction work is progressing in fine style. Length of main tunnel 1,200 feet, 700 of which is in bed-rock.

#### TRINITY COUNTY.

**A RICH RAVINE.**—*The Trinity Journal*, of July 8th, says: One short blind ravine on Oregon Gulch, to be seen from the road leading to Junction City, and not more than three or four hundred feet long, has lately yielded \$80,000. One hundred dollars a day to the man was rocked out for a number of days in succession by the fortunate discoverers.

**COARSE GOLD IN DUTCH GULCH.**—The same paper says that Mr. H. W. Markey, during two months, last winter, took out of Dutch Gulch \$1,000, working alone. The ravine obtained its name from having been mined for some time, in years gone by, by two Germans. They had sunk a hole within four feet of the largest piece found by Markey. Mr. M. has sold out to a company of Portuguese.

**BUCKEYE.**—Mining is over on Buckeye, the water having given out, and some of the hoys have done well. This stream has been twice worked and abandoned. A few years ago, a gentleman who had worked there in early days, after having run after every mining excitement, came back to Buckeye. The first season after his return he struck it big, finding one piece of gold several hundred dollars in value. Since then it has been worked by several companies, every year paying well. The great drawback is a scarcity of water.

### Nevada.

#### ELY DISTRICT.

**DEFIANCE.**—*The Ely Record*, of July 2d says this mine has been worked steadily of late and considerable ore taken out. The proprietors, Wilson & Co., are shipping ore to Meadow Valley, and are expecting handsome returns. There are several other mines near by, partially developed. A great obstacle to the prosperity of this locality is the lack of a custom mill near by.

**BULLION SHIPPED.**—Wells, Fargo & Co. shipped, from July 2d to the 5th, through their agent B. F. Sides, bullion valued at \$44,777.25. Pretty good.

#### EUREKA DISTRICT.

**RETURN OF PROSPECTORS.**—*The Sentinel* of July 6th announces the return of a party of prospectors, who have been gone some three months to the east and south, as far as the cotton wood country in Utah. They found several promising mining localities; but that of chief interest was in the Troy district, 120 miles southwest, from which beautiful specimens were brought.

**NEW STRIKE.**—Messrs. Steele, Handson and Sprague, after sinking for some time in New York canon, concluded on Thursday to discontinue work on Saturday last if no mineral was reached by that time. Early Saturday morning they struck a promising vein. Promising discoveries have also been made about 30 miles west of Eureka.

**THE WAR EAGLE MINE.**—The same paper says that this new mine is assuming immense proportions, with a fine show of ore. The iron rock has given way to the ore which is widening. Shaft now 26 feet deep. Assays have been obtained of apparently average rock as it now appears in the shaft of \$121, \$288 and in one instance of \$705.

**GOOD YIELD.**—Up to the 7th inst., for the month of June, the Eureka Consolidated had smelted 325 tons of bullion. The company is sending the bullion to New York, and although the price of freight is much increased, it is gainer over what it would be if sent to San Francisco. We are promised that for July we can report 500 tons of bullion produced by the Eureka Consolidated. The ore is yielding a better per cent. of silver than ever before with enough in sight to make 3,800 tons of bullion.

#### REESE RIVER.

**BULLION FOR JUNE.**—During the month of June just past, says the *Reese River Reveille* of Austin, there were shipped through the office of Wells, Fargo & Co., in this city, 106 bars of silver bullion, weighing 8,645 pounds of the value of \$102,065.83.

#### WASHOE.

**SAVAGE.**—**WATER SUBSIDED.**—The great rush of water recently encountered at the lower levels of the Savage, has subsided considerably, and is now getting pretty well under control. It is out of the Hale & Norcross altogether. When the tunnel and drift have been cleaned out, there will probably be an opportunity for discovering the cavity whence the rush of water came. The old upper hoisting works have undergone quite a renovation. The building

has had a new front added to it, and is put into good condition.

**KENTUCK.**—*Gold Hill News*, July 7th:—This mine is looking and yielding well at the present time, and the bullion shipments for the month of June amounted to \$23,000. Very little prospecting is being done but in the course of two or three months a drift will be run from the 1,300-foot level of the Crown Point, in order to prospect the Kentucky at that depth. Meanwhile the Company will do no prospecting, but quietly go on taking out ore.

**OPHIR.**—The shaft is 830 ft. deep—105 fathoms its former depth—rock hard but blasts well—little water. It is now expected the depth of 1430 feet, which is contemplated will be reached much sooner than was expected. A new station and drift for the ledge will be opened at each 200 feet.

**SIERRA NEVADA.**—*Gold Hill News* 5th: John Lambert, Esq., the new Superintendent of the Sierra Nevada mine, has fully entered upon his duties, and is overhauling things generally. Mr. Lambert is one of the oldest and most experienced Superintendents on the Comstock, and with an honest and reliable gentleman in whatever position he may be placed.

**LADY BRYAN.**—Same paper, 7th: This valuable mine still continues its remunerative yield, and the ore producing sections are looking excellently, with good prospects for plenty of pay ore for a year or two at least. The last shipment of bullion amounted to over \$7,000. The mine is being systematically and profitably worked under the present management.

**CALEDONIA.**—In this mine they are sinking for a new level 400 ft. deep, or 100 ft. below their present lower level. With this new section of their shaft they are down 50 ft., rock hard and requires to be blasted, taking out excellent ore on their 300-foot level, and very good quality on the 200 foot-level.

**CONCOLIDATED VIRGINIA.**—The quartz in the south drift has of late considerably improved in appearance. It can be worked with picks, and there is no water to inconvenience the workmen.

**DIVIDEND.**—A dividend of \$10 per share has just been declared by the Crown Point.

**SUTRO TUNNEL.**—*Enterprise*, July 7th: The Suto Tunnel Commissioners visited the tunnel on the 3d and were well pleased with the point selected for beginning the work, and with what has been done. No better route could have been selected, as the tunnel will pass under several ravines and hasins, which will much favor the sinking of the several shafts to be put down along the line for the purpose of working at once at various points. Tunnel in 2,178 ft.

**BULLION—QUARTERLY REPORT.**—*The Gold Hill News* says the shipment of bullion from the office of Wells, Fargo & Co., for the quarter ending June 30th, amounted to 1,905 bars, worth \$3,265,412.63. The shipment for April was \$1,040,042.51; for May, \$1,148,787.53; and for June, \$1,076,532.59.

**BULLION RECEIVED.**—*Enterprise*, July 7: There were yesterday received at the Bank of California, in this city, \$70,000 in silver bars, from the Crown Point and Yellow Jacket mines.

### Arizona.

**RICH ORE.**—The Tiger ledge, Bradshaw District, is turning out some rich ore. Some of it much resembles the black sulphurets from the Yellow Jacket in Washoe.

**CHEERING PROSPECTS.**—*The Arizona Miner*, says: "These are the metallic times that cheer the prospector and miner.... The California spirit of '49 is rampant among our people.... Gladly would we dilate upon the great ledges of Bradshaw, Yavapai and Dassayampa Districts; but, at present, this no time or place to do so. All we can say is that the Tiger lode more than equals any mine we have ever seen, and there are scores of ledges in our mountains nearly equal to it.

Silver bricks are now quite common in Prescott, and silver ore that assays from \$100 to \$10,000 per ton may be seen in almost every house.

A piece of ore from the Lone Star, weighing three pounds, was tested last week, and produced at the rate of \$630 to the ton. A party of men left on Monday to commence work on this mine.

The Jackson Bros. expect to have their quartz mill in operation, at Bradshaw, within three weeks, crushing ore from the Del Pasco lode. This is one of the richest gold ledges in the district, and Jesse is determined that it shall yield him a gold brick by the 1st of August.

Mr. Porter came in from the Colorado river via the Hardyville route, one day this week, and gave us very encouraging



news from the mines of the Hualapai District.

Colorado.

CLEAR CREEK COUNTY.—Cor. of the *Register*: M. E. Birdsell has sold his interest in the Comet lode. Very little mining is now going on in that section. Two silver bricks are shown at Bank of J. B. Chaffier & Co.—One valued at \$1,082, taken out by Palmer & Nichols; the other valued at \$1,122, was from the International mill, Argentine, taken out of 7 tons of Belmontore. There is about 60 tons of some quality on the dump.

A small lot of ore dug out of the Equator slide, was sold to Stewart at \$673 per ton.

Palmer & Nichols are working steadily. Stewart's works are filled with mechanics, setting up the machinery of the Arey furnace.

SUMMIT COUNTY.—Correspondence *Central City Register*: George Day is running two flumes 600 and 500 ft. in length respectively, working ten men, has considerable ground stripped, and is averaging about \$10 per day to the man. Calvin Clark is working fourteen men, in about 1,500 feet of flume, and as heretofore, is averaging about \$10 a day to the man. J. Todd is working four men, has in about 800 feet of flume, and is in good pay. The Badger Flume Co., owned by Rood, Clark, Eysler, & Co., William McCartney, Superintendent, have in about 500 feet of flume, and are working three men. They expect to reach bed-rock inside of two hundred feet, at which time they will probably realize handsomely. The Grant Flume Co., owned by Huff, Pollock, & Co., have in 1,700 feet of flume, and are working eleven men. They are running the flume, and also side drifts, all of which prospect largely.

On Stillson's Patch, west side of French, Mr. Sissler is taking out good pay. Mower & Hays developed some good ground in the Patch last winter. Pearce & Co., (late J. McFadden,) will start up in a few days, and without the least doubt will average \$10 a day to the man.

FRENCH GULCH is about five miles long, and with Stillson Patch, has about 17 miles of ditches, 6,700 feet of flume, five hydraulics, eight families, and a population of about 105. A large number of lodes have been discovered in the vicinity, many of them somewhat developed.

Gold Run retains its former reputation, and is being worked by a number of companies who are all averaging about \$10 per day to the man.

Delaware is being worked by five men, who are taking out good pay.

Galena is worked by two companies, who are doing well. Galena is covered by a five-mile ditch and uses two hydraulics.

Georgia, Humbug, and American gulches are owned by six companies, and are the richest in the county, realizing from one to two ounces a day to the man, with a few inches of water.

THE CORINNE REPORTER says that reliable advices have recently been received from Cariboo showing that extensive gold-fields exist, and that the yield will be large. A letter received last evening by Mr. Kupfer from Mr. Meyer, a reliable gentleman mining at Cariboo, states that active mining had but just commenced, and that the most encouraging results had been obtained from "several clean-ups." Two men working the claim immediately above the writer had made their first "clean-up" the evening before the date of the letter from a ten-hors' run, and they realized \$23 and some cents in good dust. Several other important results are reported.

The Salt Lake *Tribune* also gives favorable accounts from that region and says that board is only \$8 per week, and miners seem to be making from \$3 to \$15 per day to the hand. The town has four stores, three saloons, two carpenter shops and one blacksmith shop.

Idaho.

MINING ACCIDENT.—The Silver City *Avalanche*, July 1st, says that on the previous Tuesday as H. S. Babcock was at work for Thompson, & Co., in the Mahogany mine, a fragment of rock from a blast struck him on the front part of the inside of his thigh, tearing and mangling the flesh in a terrible manner and producing a frightful looking wound, although, fortunately, no bones were broken.

CHINAMEN.—Three Chinamen were killed in an affray at the Loon creek mines. They had become obnoxious on account of their thieving propensities, and refused to leave the place when ordered to do so.

BULLION SHIPMENT.—Wells, Fargo & Co. shipped from Silver City nine bars of hulsion, valued at \$18,831.68 during the last week in June.

Montana.

FRENCH GULCH.—Mr. J. L. New, of French Gulch, informs the *Independent*, of June the 30th, that there are now companies at work on the main gulch and tributaries. Three hydraulics are in operation and the prospect is very good for large clean nps. There are three bed-rock flume companies at work, all of whom will do well this season. The swamp Co., cleaned up \$2,000 last week.

GERMAN GULCH.—The same paper states that although but little money has heretofore been taken out here, yet, during next week there will be a considerable number of clean-ups. The McCleary Bro.'s cleaned up last week \$1,650—the largest amount taken out by one company this season.

A GREAT ENTERPRISE.—One of the most important enterprises ever undertaken in this region, says the journal above quoted, is the undertaking of the Humphrey Bros., of Butte City, to bring the waters from the eastern side of the range to the rich placers on the western slope of the mountains. To do this a tunnel has to be cut through the main range of the Rocky Mountains. The ground is known to be very rich and covers an area of 10 miles square.

IN AND ABOUT NEVADA.—The *Montanian*, Virginia City, June 29th says:—Messrs. McGovern and Donegan are working their claims opposite Adobe Town, and are moving more dirt, this year, with less labor than on any previous year. They are making \$12 a day to the hand.

Seaville & Wonderly, working opposite Nevada, have their ground in good shape, and are taking out from eight to ten dollars to the hand.

Davis & Co.'s flume, just below Nevada, is running successfully and paying well.

Utah.

THE Salt Lake *Herald* furnishes the following: A heavy body of rich ore has been struck at the Monitor and Magnet mines in Little Cottonwood, some of it running as high as \$1,200 to the ton.

The purchase of Sevenoaks & Co., in American Fork district, is turning out about nine tons of hulsion a day.

The mines in Camp Floyd district are turning out well. One company is arranging to expend from \$3,000 to \$4,000 a day in developing the Sparrow-Hawk mine.

The Merced Cotton Experiment.

We have received a specimen stalk from Col. Strong's cotton plantation in Merced, which measures 24 inches in length. This shows a good growth for less than eight weeks from planting. The stand, we are informed, is considered a very good one; much better than could have been expected from the unfavorable weather which has prevailed since the plants made their appearance. The fields did fair to turn out far above the average of the best lands of Mississippi and Tennessee, even in their best seasons. We regard the experiment as one of the most important ever undertaken in the State. If it is successful this year, notwithstanding the drouth and the cold, windy weather which prevailed throughout the month of May and a part of June, we may regard the problem of cotton growing in California as definitely settled, and a mine of wealth opened up to the State, worth more than our either gold or grain. We shall carefully note the progress of the growth and maturing of this crop, and publish the same for the benefit of our readers, as many of them will no doubt, in the event of Col. Strong's success, feel encouraged to test the soils of their respective farms, with a view to this crop—one of the most profitable which can be grown.

COAL NEAR ST. LOUIS.—The discovery of a superior quality of block coal, within eight miles of the river and within ten miles of the furnaces and rail mills at Carondelet, is an important step towards establishing the supremacy of St. Louis, as the great iron manufacturing center of the continent. This bed of coal is believed to cover an area of 1,800 acres, and it is said that the coal is equally as good as the Indiana block coal, now used at some of the furnaces, and can be furnished at half the price paid for the Brazil coal. The vein is five feet thick, with a limestone roof, and clay floor, and is free from slate and sulphur. From the coal bank to the river is a good grade for a narrow gauge railroad, on which the coal can be transported directly from the mine to the stock-house of the furnace in the same cars.—*Jour. of Commerce.*

Mining Stock Market.

[San Francisco Stock and Exchange Board.]

THURSDAY EVE., JULY 13, 1871.

The mining stock market has fluctuated very considerably during the past week. The Board had a recess the previous week, meeting again last Thursday. Eureka has sold several times at \$53 to \$55.

DIVIDENDS.  
During the month of June, dividends were paid as follows: Chollar-Potosi, \$2 per share, \$56,000; Crown Point, \$10, \$120,000; Eureka (Cal.), \$1, \$20,000; Greenville (Cal.), \$1, \$4,000; Natoma W. & M., 1 per cent., \$3,000; North Star (Cal.), \$4 per share, \$12,000; Raymond & Ely, \$1, \$30,000; Redington Quick-silver, \$5, \$6,300; Yellow Jacket \$2.50, \$60,000. Total, \$311,300.

CHOLLAR-POTOSI.  
The annual meeting of the Chollar-Potosi M. Co. was held July 10. The following were chosen Trustees: A. K. P. Harmon (President), J. D. Fry, W. Norris, A. Bull, J. H. Dobinson, H. C. Kibbe and J. Freeborn. Secretary, W. E. Dean; Superintendent, I. L. Regua.

From the Superintendent's report, which we have received, we extract the following: During the past year, 84,681 tons of ore have been raised, against 56,636 tons raised during the previous year. The amount of ore milled during the past year was 83,775 tons, and the value of bullion produced, \$3,444,023.

The average yield of the ore and the cost of milling and mining for the two last fiscal years were:

	1869-70.	1870-71.
Average Yield of Ore per ton.....	\$24.86	\$41.30
Cost of Milling per ton.....	12.81	12.06
Cost of Mining per ton.....	3.99	4.69
Profit per ton.....	\$8.06	\$24.61

The receipts for the year were: From Bullion, \$3,444,023; Reclamation from Mills and Premium on Bullion, \$20,902, Miscellaneous, \$11,010; Total, \$3,475,935. Cash on Hand, July 1, 1870, \$128,253. Total Expenditures, \$3,403,467. Cash on Hand, July 1, 1871, \$200,721. Dividends paid, varying from \$1 to \$5 per share, foot up to a total for the year of \$1,946,000.

The report is a very flattering exhibit for the company, and looks extremely well for the management.

QUOTATIONS.  
The following table gives last Thursday quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week.

	July 6.	Highest.	Lowest.	July 13.	Adv.	Dec.
Alpha.....	9	209	162	194	—	—
Belcher.....	194	32	14	46	—	—
Chollar-Potosi.....	31	325	285	320	—	—
Crown Point.....	418	15	14	14	—	—
Eureka.....	14	48	40	42	—	—
Golden Chariot.....	40	115	78	118	5	—
Gould & Curry.....	115	72	36	72	—	—
Hale & Norcross.....	80	9	7	7	—	—
Ida Elmore.....	8	41	33	36	—	—
Imperial.....	39	137	112	120	—	—
Kentucky.....	128	20	17	19	—	—
Meadow Valley.....	18	9	7	7	—	—
Ophir.....	9	10	7	6	—	—
Orig. Hld. Trass.....	6	8	7	8	—	—
Overman.....	11	42	39	40	—	—
Savage.....	42	73	68	67	—	—
Yellow Jacket.....	72	—	—	—	—	—

Latest Prices.					
	BID.	ASKED.		BID.	ASKED.
Alpha Cons.....	—	—	Ida Elmore.....	—	—
Amador.....	133	194	Imperial.....	36	36
Belcher.....	46	46½	Kentucky.....	115	120
Chollar-Potosi.....	—	—	Meadow Valley.....	19	19½
Crown Point.....	13½	14	Ophir.....	6½	6½
Eureka Cons.....	13½	14	Orig. Hld. Treas.....	6	6
Eureka.....	—	—	Overman.....	—	—
Golden Chariot.....	—	—	Savage.....	39½	40
Gould & Curry.....	109	110	Sierra Nevada.....	—	—
Hale & Norcross.....	74½	75	Yellow Jacket.....	66	67

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, July 1, 1871.

Pig, Scotch, No. 1 (cash), per ton.....	\$33.00	@ 35.00
Pig, American, No. 1 (cash).....	35.00	@ 36.00
Pig, American, No. 2.....	33.00	@ 34.00
Swedish, ordinary sizes.....	105.00	@ 120.00
Common.....	72.50	@ 75.00
Refined.....	72.50	@ 75.00
Rods.....	82.50	@ 120.00
Cast-iron.....	38.00	@ 40.00
Hoop.....	100.00	@ 145.00
Scroll.....	100.00	@ 120.00
Nail-roads, per lb.....	—	6 1/2 @
Eureka.....	—	7 1/2 @
Tires.....	—	7 1/2 @

Bars, best cast, warranted, per lb.....	—	18 @
Sheet, best cast.....	—	16 @
Sheet, second quality.....	—	15 @
Sheet, third quality.....	—	12 @
Saw-piles, circular.....	—	20 @
Single-shear.....	—	18 @
Montague & Co. (cast bars).....	—	15 @
Machinery, round.....	—	11 @
German, goat.....	—	10 @
German, eagle.....	—	9 @
Bistar, warranted.....	—	10 @
Bistar, common.....	—	10 @
Jessop & Sons, common.....	—	17 @
Nonble-refined.....	—	28 @
Stone ax shapes.....	—	26 @

American Lead, per 100 lbs.....	7.50	@ 8.00
German.....	7.50	@ 8.00
Bar.....	8.50	@ 9.00
Pine and Sheet.....	8.50	@ 9.00
Manganese and American Zinc, per lb.....	—	9 1/2 @
Antimony.....	—	16 @
Spelter.....	—	17 @
Copper, old.....	—	17 @

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME.	LOCATION.	AMOUNT AND DATE OF ASSESSMENT.	DELINQUENCY.	DAY OF MEETING.
Altona G. M. Co., Nev.	Co., Nev.	May 28, 25c.	June 26—July 17	Aug. 15
Daney, Lyon Co., Nev.	June 15, \$2.50	July 18—Aug. 5		
Eagle M. Co., Cal.	June 14, \$20.	Aug. 9—Aug. 15		
Gould & Curry, Va.	City, June 29, \$15.	June 29—July 1		
Hale & Norcross, Va.	City, June 29, \$10.	June 29—July 1		
Highland S. M. Co., Nev.	July 13, 10c.	Aug. 1—Sept. 11		
Imperial, G. H. M., May 22, Co.	April 27, \$2.50	June 10—July 1		
Kincaid F. M. Co., Taz. Co.	June 24, \$10.	June 24—July 1		
Latawans M. Co., White Pine	May 16, 20c.	June 22—July 11		
Mahogany, Owyhee Co., I. T.	June 22, \$2.	Aug. 10—Aug. 28		
Marcelina, Nev.	June 2, 20c.	June 11—August 13		
Meadow Valley Ex. July 5, \$1.	.....	Aug. 14—Sept. 11		
Mountain City M. Co., June 8, 25c.	.....	July 18—Aug. 8		
Nevada M. Co., May 8, 4c.	.....	June 8—July 3		
Ophir, Placer Co., Cal.	May 30, 60c.	June 17—July 15		
Ophir, Va. City, July 12, 25c.	.....	Aug. 18—Sept. 8		
O. H. Treasures, July 6, \$2.	.....	Aug. 9—Sept. 2		
Pinto M. Co., Nev., May 24, 12 1/2c.	.....	June 26—July 17		
Salemander G. & M. Co., May 4, 35c.	.....	June 12—July 10		
Sierra Iron Co., May 17, 60c.	.....	June 25—July 20		
Summer, Kern Co., June 14, 25c.	.....	Aug. 15—Aug. 30		
Taylor, El Dorado Co., May 27, 10c.	.....	July 12—August 4		
Taylor M. & M. Co., Cal.	July 11, 10c.	.....		

MEETINGS TO BE HELD.	
Altona No. 1.....	Annual Meeting, July 6
California.....	Annual Meeting, Aug. 1
Empire.....	Annual Meeting, July 17
Mahogany M. Co. (Cal.).....	Special Meeting, July 24
Mohawk & Montreal.....	Adjourned Meeting, July 25
Overman.....	Annual Meeting, July 13
Savage.....	Annual Meeting, July 20
Tecumseh.....	Annual Meeting, July 20
White Pine Smelting.....	Special Meeting, July 22

LATEST DIVIDENDS—(Within Three Months).	
Chollar-Potosi, \$2.....	Payable July 11
Chollar-Potosi, \$5.....	Payable May 20
Crown Point \$10.....	Payable June 10
Eureka, div., \$2.....	Payable May 6
Eureka (Cal.) \$1.....	Payable July 7
Eureka Cons., 75c.....	Payable April 10
Golden Chariot, div., \$7.....	Payable March 10
Hale & Norcross, div., \$5.....	Payable April 10
Meadow Valley.....	Payable July 15
Natoma, div., 1 per cent.....	Payable June 5
North Star, \$3.....	Payable May 10
Overman.....	Annual Meeting, July 13
Redington, 1 per cent.....	Payable June 16
Yellow Jacket, \$2.50.....	Payable July 10
Yule Gravel, 50 cts.....	Payable July 5

—Advertised in this journal.

San Francisco Retail Market Rates.

FRIDAY, July 14, 1871.

MISCELLANEOUS.	
Butter, Cal. fr. lb.....	45 @ 50
Pickled, Cal. lb.....	35 @ 40
Do Oregon, lb.....	40 @ 45
Honey, lb.....	25 @ 30
Onions, lb.....	20 @ 25
Eggs, per doz.....	30 @ 35
Lard, lb.....	18 @ 20
Sugar, cr., 6 1/2 lb.....	10 @ 12
Brown, do, lb.....	10 @ 12
Butter, doz.....	1.00 @ 1.10
Sugar, Map. lb.....	25 @ 30
Plums, dried, lb.....	15 @ 25
Peaches, dried, 1 lb.....	15 @ 20

PRODUCE, ETC.	
Codfish, dry, lb.....	6 @ 12
Flour, 2 1/2 lb.....	7 @ 10
Superfine, do.....	5 @ 6
Corn Meal, 100 lb.....	3 @ 5
Wheat, 100 lbs.....	2 @ 3
Oats, 100 lbs.....	1 @ 2

FRUITS, VEGETABLES, ETC.	
Pine Apples, 1 1/2 doz.....	40 @ 50
Bananas, lb.....	3 @ 4
Cal. Walnuts, lb.....	20 @ 25
Cranberries, lb.....	75 @ 100
Cranberries, 1/2 lb.....	100 @ 120
Apples, Early, hr.....	50 @ 60
Red Astrakhan.....	1.50 @ 2.00
Red Jonathans.....	2.00 @ 2.50
Pears, tall, lb.....	75 @ 100
Plums, Cherry, lb.....	6 @ 8
Plums, lb.....	10 @ 12
Apricots, lb.....	10 @ 12
Blackberries, lb.....	10 @ 12
Blackberries, lb.....	8 @ 10
Oranges, lb.....	25 @ 30
Lemons, lb.....	25 @ 30
Fig, dried, lb.....	2 @ 3
Asparagus, wh.....	6 @ 10
Artichokes, doz.....	50 @ 60
Grasshoppers, doz.....	15 @ 20
Beets, doz.....	20 @ 25
Potatoes, lb.....	2 @ 3
Carrots, lb.....	1 @ 2
Potatoes, new.....	4 @ 5
Groceries, doz.....	1.00 @ 1.50
Quailfowl, doz.....	1.00 @ 1.50

POULTRY, GAME, MEATS, ETC.	
Chickens, apiece.....	50 @ 75
Turkeys, lb.....	20 @ 25
Ducks, wild, lb.....	10 @ 15
Geese, wild, each.....	1.50 @ 2.00
Tame, pair.....	2.50 @ 3.00
From Chicago.....	75 @ 85
Hens, each.....	40 @ 50
Snipe, doz.....	10 @ 15
English, doz.....	10 @ 15
Venison, lb.....	10 @ 12
Quails, doz.....	10 @ 12
Pigeons, dom. doz.....	30 @ 50
Wild, doz.....	50 @ 100
Hares, each.....	40 @ 50
Rabbits, tame.....	50 @ 100
Wild, doz.....	12 @ 15
Squirrel, pair.....	25 @ 30
Beef, lb.....	10 @ 15
Steak, lb.....	10 @ 15
Shoat and rib.....	10 @ 15
Corned, lb.....	10 @ 12
Spring, lb.....	15 @ 18
Pork, rib, etc.....	12 @ 15
Chops, doz.....	12 @ 15
Veal, lb.....	15 @ 20
Chest.....	20 @ 25
Mutton chops.....	12 @ 15
Leg, lb.....	12 @ 15
Shoat, lb.....	12 @ 15
Tongues, beef, ea.....	75 @ 100
Tongues, pig, ea.....	15 @ 20

\* Per lb. † Per dozen. ‡ Per gallon.  
AGENTS CAN MAKE FROM \$1,000 TO \$5,000 A YEAR in most any section of the country, selling Dana Bickford's new and improved FAMILY KNITTER. This Machine is guaranteed (in its present completeness) to meet every want of the household for either domestic or fancy work. Price \$25. Send stamped envelope with full directions for an illustrated book. Address DANA BICKFORD, Vice President and General Agent, 639 Broadway, N. Y. 237-22-6m-hp  
LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine at bargainably low prices may apply to No. 294 Bowery, 157 E. 25th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mhp



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JUNE 27TH.

IRONING AND STRETCHING BOARD.—Jacob W. Davis, Reno, Nev.

VEHICLE.—Clark Elliott, Woodland, Cal., assignor to himself and Nathan Elliott, same place.

PUNCHING-MACHINE.—Daniel Anderson Faulkner, Centerville, Cal.

FURNACE FOR ROASTING ORES.—Frank Kessler, San Francisco, Cal.

CHURN.—Thomas Bee Parke, near Downville, Cal.

PORTABLE POWER-PRESS.—Thomas B. Wait, Zena, Oregon.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

### Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

LAMP.—M. Samuels, S. F. This is one of the class of lamps known as fountain lamps, in which the oil is contained in a vessel surrounding the burner tube so as to provide a fountain from which the oil is fed by connecting tubes to the burner. This invention consists in so connecting the fountain with the central vertical oil tube that a free and open space will be left between the two at all points. It also consists in surrounding the vertical oil tube with an outer tube, so as to leave an air space between the two. The burner is secured upon the outer tube, while the oil is contained in the inner one, and the latter, by this construction, cannot become heated and therefore all danger of explosion is avoided.

MOP HEAD.—J. Brizee, Alvarado, Cal. This invention consists in employing strong wires or rods which are secured to the mop handle and bent so as to lock over one another and bind the mop cloth between them. Another wire is arranged to slide upon these so as to hold them tightly or to release them. The device is very simple, cheap and durable.

ROASTING FURNACE.—J. S. Akin, Rye Patch, Nevada. This is a furnace designed to effect the oxidizing or chloridizing roasting of ores in a quick and comparatively inexpensive manner. The inventor has spent considerable time and money in perfecting the construction and claims to have arrived at satisfactory results.

BRANCHING CORN.—Mr. Call (of the well known tool-manufacturing firm of Bemis & Call, Springfield, Mass.) recently called our attention to a stalk of branching joint pop-corn, presented to him by the original propagator of the species, Mr. Judson, of Cuba, N. Y. The stalk, 41 inches long, contained 9 matured ears of an aggregate length of 44 inches. The specimen is a curiosity, which has required years in its production. The seed is now for sale in New York. We have a sample for planting next season.

A WHITE LEAD MANUFACTORY is to be established in San Francisco during the present year, by a gentleman connected with a very successful company in the East. A new and improved process, we are assured, will be used. Thus manufactories are commencing to be drawn to our coast.

### Editorial Notes Eastward.—10.

Echo Canon.—U. P. R. R.

Journeying on, we come to Echo City, a quiet little settlement, prettily situated. Then, leaving the Weber, we run off to the left, up among the hold red sandstone bluffs of Echo Cañon, where many a fantastic shape attracts our attention.

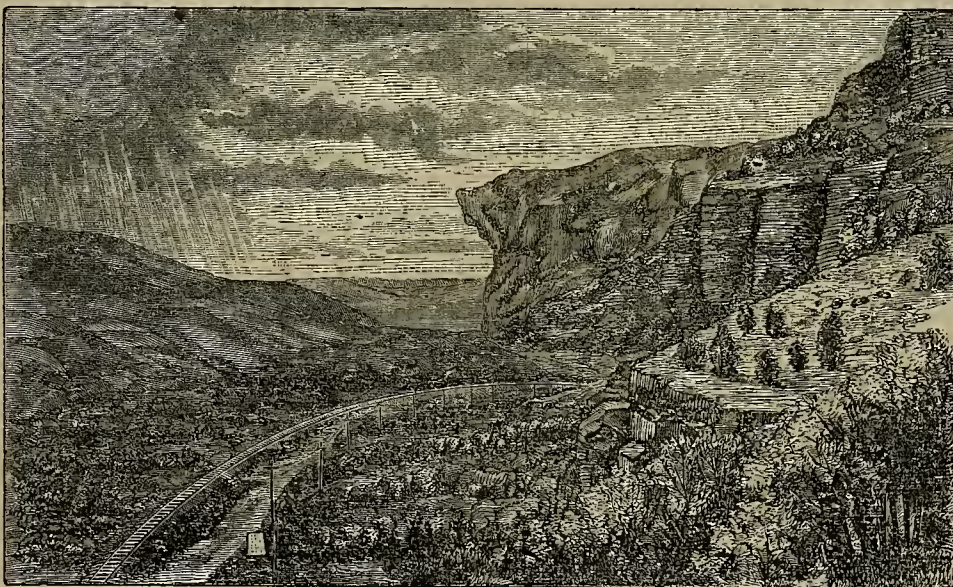
One of the first of these is Pulpit Rock, so called, partly from its appearance, and partly from the fact that from its summit Brigham Young preached (or is said to have preached) his first sermon in Utah. Then there is Monument Rock, the "Great Eastern," Dead Man's Rock, and numerous others. The massive walls of stone grow higher and higher and tower far above us, rising as mighty castles, huge cathedrals and rugged battlements.



PULPIT ROCK, ECHO CANON.

The cañon presents many an imposing view, mostly on the north side, however, and the travelers all congregate on the left side of the cars to see them. We can catch but brief glimpses as we hurry by, but these glimpses give us grand ideas of

present, and, of course, no adequate description can be given of it. But it has been visited by some of the curious in the neighborhood, and penetrated to the distance of half a mile or more. The entrance to it is from the east, just above the margin of the western shore of the Missouri



HANGING ROCK, ECHO CANON.

nature's agencies in these remarkable regions.

The Mormon fortifications are pointed out, and the old Emigrant Road with its most dramatic of histories. Soon we come to the Hanging Rock, [illustrated from Croft's Transcontinental Tourist Guide], jutting out from the face of a cliff like half the arch of a bridge, and threatening, as it has threatened for years, to fall in ruin from its position. So we ride swiftly on through the mighty places, turn into North Echo Cañon, with its Castle Rocks from 500 to 2,000 feet high, finally plunge through the longest tunnel on the Union Pacific, 800 feet long, and come to Wahsatch.

April 13th.

IMPORTED STOCK.—Among the blooded stock brought into California this season, were five Ayrshire yearlings, for James Quinn and others of Yreka, and a Clydesdale stallion and mare, for James Vance, of the same neighborhood. They were sent out by F. D. Curtis, from New York, at a cost for freight of \$600 for a car-load.

### A Wonderful Cavern.

There is, within eighteen miles of Helena, one of the most wonderful caves in the world.

The Vermillion Buttes, a beautiful and picturesque range of hills, lie a little north of east from Helena, on the Missouri river, terminating abruptly at the Spokane Pass and Beaver creek on the south, and bounded on the north by the Prickly Pear cañon. They are dotted here and there with isolated pines and little groves, are covered from base to summit with a dense and luxurious growth of bunch grass, are traversed with regularly defined rocky ledges, forming beautiful avenues, and on top of the highest mountain there is a beautiful transparent spring, affording abundance of water. Beneath these buttes, mountains or hills, is an extensive subterranean cavity, whose boundaries and form have never been discovered by white men. This vast cavern is a perfect mystery at

the howels of the hill, and has been followed by the footsteps of men for several hundred feet. It is believed that this is an entrance to the cave, and if so, it is at least three miles from that on the Missouri first mentioned.—*Helena Gazette*.

### The Wild Peach of Nevada.

There grows in Nevada a species of wild peach which is exceedingly hardy and will live nearly everywhere that the sage brush can exist. It is found especially frequent in Carson Valley, Humboldt Valley and on the hills around Reese River, perhaps also elsewhere.

This tree grows to about the height of a man's shoulder in the most favorable localities, but is frequently found not over a foot high. The leaf is small and thick, more like that of the plum. In the spring of the year the plains are covered with the beautiful pink blossoms. The fruit has the perfect form of the peach, is greenish with a crimson tinge, of small size, not over  $\frac{3}{4}$  to 1 inch in length, and is very bitter to the taste.

Dr. A. Blatchly, who furnishes us with the above information, says that he has long urged the grafting of this tree with good buds, as probably good fruit could thus be obtained. If on this hardy stock, which is very long-lived (it is said to live for 40 or 50, perhaps 70 years), a good peach could be grafted, it would be a great gain for Nevada. The experiment is certainly worth trying.

### The Mechanics' Fair.

The Pavilion is being altered and enlarged for the coming Industrial Fair, and already the body of the building has been enlarged to Geary street on one side and Post street on the other.

More space has been applied for than was occupied at the last Fair, and applications are still coming in. Any delayed till after the 15th inst. will not be allowed in competition. People in New York, Philadelphia, Chicago, and in Sacramento, San Jose, Stockton and other cities, have made application and will have goods on exhibition. The next steamers from Japan and Australia will also bring articles for the Fair. It will open on the 12th of August, and promises to excel all other exhibitions of the kind which have preceded it in California.

### FOSSIL REMAINS DISCOVERED.

While prospecting in one of the deep ravines formed by streams flowing from Stockton Cañon, Dr. L. G. Yates and Dr. Charles Allen, of Centerville, discovered the fossil remains of a mastodon. Its measurement is as follows: From front of jaw to the back of last molar teeth, twenty-four inches; width of jaw at angles, 18 inches; width of jaw midway between front and rear, 15 inches; depth of jaw from the crown of molar teeth, 9 inches; thickness of jaw, 6 inches. This specimen exhibits, in a marked degree, the peculiar process of shedding and replacement of the molar teeth. In the mastodon, all the grinders succeed like true molars, horizontally, from behind forward. In the jaw here mentioned, a part of one set of teeth have just been shed, another set are in place, and another set developed in the jaw, ready to replace others when shed. The jaw is one of the finest ever discovered in California.—*Bulletin*.

REMARKABLE FLOOD.—Papers from the Cape of Good Hope give accounts of a remarkable and sudden flood which has occurred at Victoria West. It is supposed to have been caused by the bursting of a water spout. In the space of two hours thirty houses were washed away and one hundred lives lost.

A ROYAL PRINTER.—The Emperor of Germany spent three years at the case.



**New Publications.**

**HORSE TRAINING MADE EASY.**—A New and Practical System of Teaching and Educating the Horse. Beautifully illustrated with 44 engravings. Whip Training. By Robert Jennings. To which is appended an Essay on Shoeing; also the Symptoms and Treatment of the Diseases of the Horse. Philadelphia: John E. Potter & Co.

The art of training horses has, until the last few years, been attended with much cruelty and bad management. The Rarey system gave a new impulse to the minds of horsemen, but this is here objected to as a system of subjugation and exhaustion, often resulting in breaking the spirit of the animal. But the method here proposed is one of education, teaching the horse what is required of him, but not trying to force him to do that which he does not comprehend.

The system of training a horse to drive without bridle, bit or reins, guided simply by motions of the whip, is original, and has been highly endorsed by several societies.

The important matter of shoeing horses, so open to error, is carefully treated in a most intelligent manner; and the directions concerning diseases, and the full history of *Glanders*, will be found most instructive.

**THE HORSE AND HIS DISEASES.**—By Robert Jennings, V. S. To which are added Rarey's Method of Training Horses, and the Law of Warranty as applicable to the purchase and sale of the animal. Illustrated by nearly 100 engravings. Philadelphia: John E. Potter & Co.

**DISEASES OF THE AMERICAN HORSE,** and Cattle and Sheep. Their Treatment, with a list and full description of the medicines employed. By Robert McClure, M. D., V. S. With numerous illustrations. Philadelphia: John E. Potter & Co.

The subjects of which these two volumes treat, have been discussed in many a publication. But old methods are continually going into disuse and a new era of more humane and judicious medical treatment is dawning upon us. New light is being thrown upon the diseases of the horse, and consequently much progress is being made in the treatment thereof.

The first of these two works is the more general in its scope, embracing the history of the horse, breeding and management, method of training, vices and diseases. The second confines itself closely to the diseases, treatment, and description of the medicines; so that they supplement one another. The authors are eminent authorities, and their works are calculated to occupy an important place in the libraries of those who own the noble animal. The latter volume treats also of diseases of cattle and sheep, and therefore comes home to a very large number of residents on our coast.

**PATENT LAWS and Practice of Obtaining Letters Patent for Inventions in the U. S. and Foreign Countries;** including Copyright and Trade-Mark Laws. By Charles Sydney Whitman. Washington: W. H. & O. H. Morrison. 1871.

This work is the result of an endeavor to compile from various sources, some of which are not easily accessible, reliable and practical information. Although intended to convey such information to inventors, patentees, manufacturers, and others who have occasion to inform themselves particularly concerning patent matters, it will be found useful also to lawyers generally, as it sets forth the state of the law resulting from the latest decisions, and contains the exact text of the late Act of Congress, by which the entire legislation in respect to patents and copy-rights was repealed, and a more complete and carefully-drawn law substituted.

**THE AMERICAN RAILWAY OFFICIALS' MANUAL,** containing valuable information for Railway Superintendents, Master Mechanics, and Engineers. Coyne & Kelyon, Chicago. 1871.

This work contains many valuable tables, extracts from technical journals and other matter of interest for the profession, such as is needed for frequent reference.

**MECHANIC ARTS COLLEGE LECTURES.**—The lecture, last week, was a repetition of Prof. Swinton's most interesting remarks on "War Correspondents. Having given one report of the lecture, we give none to-day, although the subject is most inviting. Next week there will occur the concluding exercises of the course, when, it is to be hoped and expected, a large number will be present.

The *Colorado Miner* asserts that smelting works will be erected at an early day at or near Golden.

**LIEUT. WHEELER'S EXPEDITION.**—The *Eureka Sentinel*, of June 15th, says: Some days past Lieut. Wheeler's party has been camped above here. The Lieut. came into town on Saturday last, and has moved the whole command south, on the road to Belmont, where he will be met by Dr. Cochran and the party that has been staying a few days at Austin. At Belmont they will be joined by Lieut. Lockwood, of Arizona, and Lieut. Lylo, of Alaska, when they will again divide, and Lieut. Wheeler's party will go through Death Valley, and another party, under command of Lieut. Lockwood, will take another route and meet again at Independence, California. When united they will start for the Colorado. At that stream they will take boats and go up, while Major Powell is going down, and they will probably meet at some point. When his explorations of the Colorado have ceased, he will go through Arizona, and return by water to San Francisco.

**THE VALUE OF SAFETY CAGES.**—Last Monday afternoon, the Crown Point cable broke while a carload of ore was being hoisted, and just as it had reached the 1,000-foot level. The cage, being provided with McMartin's new safety gear, did not fall over three-fourths of an inch, though besides the weight of the car and ore, the weight of one thousand feet of cable had to be sustained, as when the break occurred this number of feet fell down the shaft and lodged upon the cage. Not long since a miner was ascending the Yellow Jacket shaft, supporting on the cage a long and heavy stick of timber. When half way up, the top of the stick on the cage caught in the cross timbers of the shaft, when the cable pulled out from the eye in which it was fastened to the top of the cage. Had the cage been one of the old-fashioned kind, it would have dropped hundreds of feet to the bottom; but being one of the safety pattern, it did not fall a single inch, but remained suspended midway between the top and bottom of the shaft, like the coffin of Mahomet, with the miner perched upon it in a situation more comical than dangerous.—*Territorial Enterprise, June 29th.*

**PLATINUM.**—The *Los Angeles Star* is to be held responsible for the following: A party of three persons started out in 1860, prospecting in the region of the Bitter Springs. They met with little success, but when on the point of returning, discovered what was supposed to be a silver mine. A load of the rock was shipped to Los Angeles, and was, on being assayed, proved to be platinum, worth more than gold. Many inquired whence came such riches, none would answer the question; \$50,000 was offered for an interest, and refused. Two of the party, after proving their first load of rock, and while en route for their location, through some unaccountable means, took ill and died. The third dropped the matter, went to St. Louis, died there, but left his secret to a merchant, who has recently started out from Los Angeles in search of the mines. He values the discovery at a million of dollars, but platinum mines, such as this reports to be, have never been discovered.

**ROCKY MOUNTAIN COAL FOR GAS.**—The experiments made by the Gas Company in this city with the Rocky Mountain coal show that it is not yet sufficiently solid to be profitably used here in the manufacture of gas. The last lot tried, however, exhibited such a marked improvement over the first, that there can be no doubt but that when a greater depth has been attained upon the vein, the coal will be almost if not quite equal to the Scotch canal coal. The first lot of Rocky Mountain coal tried yielded 3,300 feet of gas per ton, and the last 4,600—a wonderful improvement. The yield of the Scotch coal is 7,500 feet per ton. The Gas Company are now using at their works the Scotch coal, mixed with pitch pine wood. When the Rocky Mountain coal has acquired such a degree of solidity as not to slake or crack open upon long exposure to the air, it is thought that it may then take the place of the Scotch coal, as, if not quite so good, it will cost less delivered in this city.—*Territorial Enterprise, June 30.*

The bamboo fibre, it is said, can be prepared so as to produce a good imitation of wool. The manufacture of Canada thistle into ropes and textile fabrics is reported to be soon attempted on a scale which will settle the practicability of the process.

**Good Health.**

**Poisonous Vegetables.**

There are many beautiful and innocent-looking forms of vegetable life to be met with in our gardens and hedges, which are yet full of deadly poison, while others, from their close resemblance to nutritious articles of food, are often partaken of by mistake, and fatal accidents are consequently of too frequent occurrence. Warnings and information upon this subject ought to form part of the instruction of every school-mistress, in order that children may learn to avoid them.

**Monk's-Hood.**

Or aconite, is a tall plant with dark green leaves and a curious hood-shaped flower, which ought never to be allowed entrance to a garden. So many deaths have occurred from the use of aconite as a medicine that it has fallen into disrepute, one drop of the tincture causing death; but it is still extensively used in homeopathic practice.

**Buttercups**

Are poisonous: they are so caustic that children's hands are sometimes inflamed by them. The poison disappears in drying, and they are harmless when mixed up with hay, and even nutritious, as their stems contain a good deal of mucilage.

**Laburnum**

Seeds are highly poisonous. Three little girls in Hertfordshire gathered and ate some of these seeds: two died that night, the third only recovered after a lingering illness.

**Night Shade.**

Half a berry of the dark purple fruit of the deadly night-shade has proved fatal.

**Belladonna**

Is also highly poisonous; strangely enough these two plants belong to the same species as the potato, and it is in the fruit, answering to the potato-apple, that the poison lies.

**Henbane.**

The roots of henbane have frequently been used in soap for parsnips. Their poison produces delirium and stupor.

**Fox-Glove,**

Though, like many other poisons, a valuable medicine in the doctor's hands, is fearfully dangerous when ignorantly used, and had better not be meddled with.

**Daffodils.**

Even the odor of daffodils and lilies is apt to cause headaches, and infants have been made very ill by swallowing little bits of the flowers, and also those of the jonquil and snow-drop.

**Laurel.**

The leaves of the common laurel are highly poisonous, and produce death in a short space of time. The taste and smell are very similar to bitter almonds, and in fact it is the same principle in each, that of prussic acid. Although a small quantity is harmless to some constitutions, others are powerfully affected.

**Yew Berries.**

The beautiful waxy berries of the yew, with their sweetish taste, are very attractive to children, and many fatal accidents have thus occurred.

**Arum.**

The wild arum, that strange-looking plant with its dark, coarse looking leaves, and its long, large greenish flower, contains a very irritating poison, which resides principally in the leaves.

**Mushrooms.**

Many accidents occur from mistakes as to the right kind of mushrooms to be gathered for use. The bright-colored ones are generally suspicious. The mushrooms proper to be used in cookery grow in the open pasture land, for those that grow near or under trees are poisonous. The eatable mushrooms first appear very small, and of a round form, on a little stalk. They grow very rapidly, and the upper part and stalk are white. As they increase in size, the under part gradually opens, and shows a fringed fur of a very fine salmon color, which continues more or less till the mushroom has gained some size, and then turns to a dark brown. These marks should be attended to, and likewise whether the skin can be easily parted from the edge and middle, and whether they have a pleasant smell. Those which are poisonous have a yellow skin, and the under part has not the clear flesh-color of the real mushroom; besides which, they smell rank and disagreeable, and the fur is white or yellow.

A French physician maintains that all mushrooms may be used as food, provided those that are reckoned poisonous are cut in pieces and washed in nitric acid and

water, or, when this cannot be had, in strong brine. When thus prepared, he allowed his family to eat all varieties of mushrooms.

It is a useful lesson to impress upon all children and young people never to eat of any unknown plant or fruit unless they receive express permission to do so from those who are competent judges.

**POISONOUS CARDS.**—A letter from Bavaria to the *American Journal of Pharmacy* mentions the introduction into the German states of a visiting card, which, because of its resemblance to "mother of pearl" has been greatly admired. After being tested by a medical professor, it has been found a soluble salt of lead, a very poisonous substance. The public not being acquainted with the poisonous properties of these cards, will not be on their guard in preventing their being chewed or eaten by small children, to whom the sweet taste (of the lead salt) and the crystallized appearance will form an attraction, thereby producing obscure cases of illness and poisoning. The inventors of such deleterious articles deserve, if not punishment, public censure for thus placing the health of human beings in jeopardy.

**CURE FOR A COLD IN THE HEAD.**—Dr. Pailon, of France, announces what he considers a new method of curing a cold in the head. It consists in inhaling through the nose the emanations of ammonia contained in a smelling-bottle. If the sense of smell is completely obliterated, the bottle should be kept under the nose until the pungency of the volatile alkali is felt. The bottle is then removed, but only to be reapplied after a minute; the second application, however, should be long, that the patient may bear it. This easy operation being repeated seven or eight times in the course of five minutes, but always very rapidly, except the first time, the nostrils become free, the sense of smell is restored, and the secretion of the irritating mucus is stopped. This remedy is said to be peculiarly advantageous to singers.

**A HEALTHFUL SUBSTITUTE FOR TEA.**—As a healthful drink, in place of tea, Dr. Thompson, in a late work of his, recommends the use of the dried leaves of the red raspberry. They cleanse the system of cancer, and thus act beneficially to the health. The leaves should be gathered on a warm day, and may be spread in a good airy chamber, on clean boards or papers, to dry. When sufficiently dry, they may be kept in sacks. A small handful is sufficient for several persons. This tea does not require the addition of milk or sugar, and is quite as pleasant as other tea, and much cheaper and healthier.

**A USEFUL REMEDY.**—A correspondent of the *Country Gentleman* says that tincture of arnica will cure oak poisoning, rapidly and completely, and that there is nothing better for healing wounds, bruises and sprains in man or beast. It will instantly stop the pain from the sting of a bee or wasp. For wounds it should be diluted with water. To make it, get two ounces of arnica flowers from a druggist, and put in a bottle with one quart of alcohol.

**ONLY APPARENT DEATH.**—An English paper states that the child of a tobaccoist named Lee, keeping a shop in Brownlow-hill, Liverpool, was taken ill of small-pox, and after a short illness apparently died. The body was laid out, and after the lapse of three days was placed in the coffin, when, to the surprise of all around, it uttered a cry and awoke from what appeared to be a mere lethargy. The recovery, however, was not final, for in a few days afterward the child actually died.

**TOMATOES AND HEALTH.**—A correspondent calls our attention to the attack recently made by a well-known writer on the use of tomatoes as an article of food, and asks our opinion. We answer: The writer gives no facts in support of his opinion. On the contrary, the experience of the public has thoroughly tested and proved their value. Don't eschew tomatoes.—*Home and Health.*

**WHY LADIES ARE SELDOM BALD-HEADED.** The ladies notwithstanding they wear long hair, (which is more likely to fall out,) seldom are bald-headed. Their heads are not kept closely covered. In sleeping, do not cover the head with a night-cap. Keep the head well ventilated; if the hat is close, raise it often and let in the fresh air; never wear the hat indoors.

Hall's *Journal of Health* says a sixpenny sandwich, eaten leisurely in the cars, is better for you than a dollar dinner bolted at a station.



# Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY,..... GEO. H. STRONG,  
W. B. EWER,..... JNO. L. BOONE.

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NEW YORK OFFICE: Room 25, Park Row. W. E. PARTIDGE, Editorial and Business Correspondent.

## San Francisco:

Saturday Morning, July 15, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, July 12, 1871. Legal Tenders buying, 89½; selling, 90. Gold in New York to-day 112½.

## Table of Contents.

Vedder's Car Coupling, Ill.; Strongest Building Timber; Mining Suit; California Instruments for Canada Pacific Railroad.....	17
MECHANICAL PROGRESS.—Steam on Canals; Putting up Fences by Machinery; Iron Bridges; American Telescopes; Cost of Pig and Bar Iron; Cement; Strength of Iron, &c.	18
SCIENTIFIC PROGRESS.—Tyndall on Sound; Utilizing Cotton Seed; Gas Tree; Telegraph Novelty; Herschel's Character; Spheroidal State.....	18
Ageing Wine; Water Pipes; Circular Instructions; Letter to the Secretary of the Treasury; New England Earthquakes.....	19
MINING SUMMARY; Mining Shareholders' Directory; Mining Stocks; Market Rates.....	20-21
List of Patents; Notices of Patents; Editorial Notes Eastward, Ill.; Wonderful Cavern; Wild Peach of Nevada; Fossil Remains.....	22
New Publications; Wheeler's Expedition; Safety Cages; Platinum; Rocky Mountain Coal for Gas; Good Health.....	23
Notices to Correspondents: Wilder's Pony Engine; Ore Shipments; Yield of Placers; Improvement in Smelting Furnaces; New Amalgamating Agent; Unique Mining Enterprise.....	24
Flour Packing Machine, Ill.; Henry Carey Baird, Ill.; Krupp's Cannon, Ill.; Colorado at the Fair.....	25
Art of Making Pudding; Good and Diseased Meat; Oiling Floors.....	26

## Notices to Correspondents.

W. L. M.—Oakland. Your idea is a good one and will be valuable if you can overcome one obstacle to its practical working, namely, its liability to get clogged up with dirt. As your drawing shows the device, the spring would soon be out of working order by the accumulation of dirt. If you can obviate this trouble, the invention will be worth patenting.

## Wilder's Pony Engine.

We saw at the Miners' Foundry, last week, a pony engine which has been built there, after Wilder's Patent, for the San José and Santa Clara Railroad. The managers of this road, finding difficulty at times when excursion parties pass over their road in providing the necessary number of horses for drawing the cars, have determined to call steam to their aid, and this engine has been built for them.

In this locomotive, the steam passes from the cylinder into an expansion chamber and thence through a coil of pipe over the fire place, where the steam is exposed to a great heat, and thence escapes without noise or appearance which would frighten animals along the road. This is one item which will interest people in the vicinity. The engine is strongly and compactly built, has 5-inch cylinder and 10-inch stroke, and is capable of drawing with ease three loaded cars. The vertical boiler has 168 one-inch tubes, with circulation pipes to prevent foaming. The blow-off also leads into the expansion chamber noted above.

This engine has been introduced into New York city, where it is now used with great success; and we think that there is great opportunity for it in this city and elsewhere on the coast. Mr. W. G. Miller is the General Agent for the Pacific Coast, and we recommend his engine to the attention of our readers.

## Ore Shipments.

The shipments of ore to this city during the last six months have been somewhat larger than they were during the first half of last year, but not equal to one-half of what they were during last half of 1870. This is due in great measure to the erection of smelting furnaces in the interior, which reduce the ores to base bullion, and has also been influenced by the rise in the freight tariff on the transcontinental railroad.

The amount of bullion received, however, is over six times that of the first half of 1870, and about twice as large as that of the last half. It is, moreover, more than twice the amount of ore received. We have noticed, however, one fact of late in this connection, which is a little remarkable. The Eureka Consolidated have made a large shipment to the East, via San Francisco and Panama. It is said that the better prices paid at the East, and the cheaper cost of freight, renders this profitable to them. But it seems to us that such a state of affairs cannot continue long.

San Francisco certainly ought to be able to induce the interior to ship to this point. We believe that she can do so. We shall soon have competition in smelting and refining here, and then we believe that we shall receive all the bullion and much of the ore from our Pacific Slope, as we now get a large share.

We give below the amounts of ore and bullion received here during the three last half-years. The tables are most interesting for comparison and reference.

	ORE.		BULLION.	
	Interior.	South.	Interior.	South.
1870.	tons.	lbs.	tons.	lbs.
January.....	169	1,660	4	400
February.....	109	920	.....	46
March.....	119	320	19	200
April.....	219	300	22	700
May.....	308	320	40	1,400
June.....	268	1,390	20	300
	1,194	240	108	1,000
	1,300 tons	1,240 lbs.	662 tons	600 lbs.

Average per month: Ore, 216 tons, 1,540 lbs.; Bullion, 92 tons, 100 lbs.

	ORE.		BULLION.	
	Interior.	South.	Interior.	South.
1870.	tons.	lbs.	tons.	lbs.
July.....	623	1,960	4	100
August.....	671	180	64	1,400
September.....	315	110	18	700
October.....	737	700	8	300
November.....	760	900	48	1,500
December.....	382	600	2	600
	3,343	360	141	500
	3,494 tons	360 lbs.	1,563 tons	100 lbs.

Average per month: Ore, 680 tons, 1,476 lbs.; Bullion, 308 tons, 1,683 lbs.

	ORE.		BULLION.	
	Interior.	South.	Interior.	South.
1871.	tons.	lbs.	tons.	lbs.
January.....	226	900	1	1,000
February.....	168	900	.....	360
March.....	256	1,000	19	1,000
April.....	200	200	272	.....
May.....	292	800	143	600
June.....	25	1,700	2	1,500
	1,166	5,000	439	100
	1,605 tons	1,600 lbs.	3,578 tons.	

Average per month: Ore, 267 tons, 1,266½ lbs.; Bullion, 69½ tons.

The above includes 680 3-5 tons of copper ore.

The amount of ores exported from San Francisco during the same time, according to the custom house returns published in the city papers, is as follows:

1870, Jan.—June.....	839 tons	\$45,826
Copper Ores.....	567 "	90,397
Various.....	97 "	13,367
Total.....	1,503 tons	\$149,680
1870, July—December.....	1,500 tons	\$69,391
Copper Ores.....	1,061 "	247,528
Gold Ores.....	1 "	1,500
Various.....	1,219 "	64,623
Total.....	3,781 tons	\$382,942
Of the exports of 1870, 1,282 tons were shipped to New York and 4,002 tons to Great Britain.		
1871, Jan.—June.....	626 tons	\$31,694
Copper Ores.....	328 "	128,466
Various.....	214 "	48,874
Total.....	1,168 tons	\$208,934
Of these, 176 tons were shipped to New York and 992 tons to Great Britain.		

If the above figures are correct, the amount of ore smelted in this city is not very large. It should be remarked, however, that the ores called "various," which include "chrome ores," etc., are not included in the tables of imports. We commend the above statistics to the consideration of our readers.

## Yield of Placers.

It would appear that heretofore the yield of the placer dirt, at least in several localities in our State, has been generally over-estimated. An example of this is with regard to the placers of Gold Run District. The *Eng. and Min. Jour.* lately had a communication with regard to an interesting calculation of the average yield per cubic yard of the dirt washed in this district, made by W. H. Pettie of the California State Geological Survey. The superficial area here, from the C. P. Railroad south-erly to the place where the deposit has been broken off by the cañon of the North Fork, is estimated at 860 acres, of which about one-half has been worked over—not worked out, as the bed-rock has been reached only at the southern extremity, in the ground of the Cement Mining Company. It is estimated that 43,000,000 cubic yards of dirt have been removed by hydraulic process, and the gross product of the district, calculated from statistics furnished principally by Messrs. Moore & Miner, is given as about \$2,000,000. The average yield, therefore, has not been over 4½ cents, and yet hydraulic mining has been carried on with large profit.

This calculation, however, embraces only the product of the surface-dirt, as there are still from one hundred to two hundred feet of gravel and cement underlying the excavation. As the richest dirt is generally found near the bed-rock, future yields will probably bring up this average considerably higher. Several estimates have been made of the average yield of the claims between the Middle and South Yuba. Our readers will remember Laur's estimates of about 16 cents, and Silliman's of about 30 cents per cubic yard (in Ross Browne's Report, 1868) for this last region. We may say in addition that we believe Mr. Pettie's calculations to have been as carefully made as any others, probably more carefully than any before.

## Improvement in Smelting Furnaces.

There is no establishment in the world, probably, where there is a better and more efficient set of officers, and where greater improvements are made, than at the smelting works of Freiberg, Saxony. Within the past ten years great advances have been made there in metallurgy, and experiments are being continually carried on.

A Freiberg improvement is the Piltz smelting furnace, which we illustrated in the *SCIENTIFIC PRESS* of January 14th, 1871. A private letter to the editor speaks of a further modification of this construction, which would appear to be a most excellent feature.

There is now no inside crucible to the furnace, but the bottom is built of brick and inclines slightly to an iron spout leading into a crucible or hearth outside of the furnace. The melted mass runs out continuously into this last crucible, which is lined with fire brick, and which is tapped whenever it has become filled with the fused matter.

By this construction the furnace runs more regularly, and the formation of "sows" is prevented. The idea strikes us as very good. Our informant writes us that "the slags are purer than formerly, and they pronounce the thing eminently a success in all ways." As the slags previously were such as would be pronounced eminently pure in this country, the new device must have proved an effectual one.

ARTISTIC.—Mr. Charles Crocker, Vice-President of the Central Pacific Railroad, has recently imported two valuable tables, one of beautiful malachite, the other of Byzantine mosaic. The latter has representations of the principal buildings of Rome.

PERSONAL.—Prof. J. D. Whitney, State Geologist, arrived from New York last Monday.

## A New Amalgamating Agent.

The Australians are reported to have discovered a new agent for extracting gold, either from the raw ore, tailings or the refuse from smelting furnaces. This is called the saccharate of mercury, and is to be used in amalgamation. The compound has been patented by two gentlemen of Ballarat.

The preparation "consists of mercury triturated with sugar until an impalpable powder is formed, and the metal cannot be discerned in it except by using a powerful magnifying glass." The dry powder is mixed with the ore, tailings, etc., and is claimed "to attract and attach to itself all the gold." The usual system of amalgamation can be carried on with the use of the new preparation as an accelerator. For ores holding at least one ounce of gold to the ton, a rotary machine has been devised. "Half a pound of the saccharate, costing fifty cents, is sufficient for the treatment of a ton of ore."

These imperfect statements give no idea of the efficiency of the agent nor of the claims made for it. We are told that several tests were made of tailings which yielded certain amounts, and that "the banks, for which the test was made, have certified to the accuracy of the figures." But whether the saccharate of mercury will extract 50, 100 or 150 per cent. of the gold, we have as yet no statements. Undoubtedly we shall hear more of the matter, as we are promised a new era in the treatment of ores from the introduction of this new blue pill.

UNIQUE MINING ENTERPRISE.—The *Sacramento Reporter* says that the Great Crevice M. Co. is preparing to work a valuable gravel deposits in a deep crevice in the bed-rock at Murderer's Bar, on the North Fork of the American river, after the plan carried out at Blossom Rock. An iron pipe, 5 feet in diameter, is to be sunk to the necessary depth, possibly 100 feet, and drifts run out thence into the gravel. "By this means, the water can be kept out of the mine with comparative ease, and work carried on below the bed of the river with safety, cheapness, and doubtless great profit. \* \* \* A steam pump will be used to keep the shaft clear of water, and when the freshets commence, a tight-fitting iron cap will be placed upon the tube, so as to effectually prevent the lower part of the mine from damage during the winter months. Altogether the contrivance is very ingenious, as well as economical, and we doubt not will succeed." This item has been copied into the city and other papers. It is properly called unique. If that steam pump does not have sufficient work to pump out the American river, we shall be mistaken. We should be unwilling to take a contract for the work. Col. Von Schmidt snnk successfully in this manner into solid rock, but sinking into gravel is an entirely different matter. We have very serious doubts as to the "comparative ease," "safety, cheapness and great profit" spoken of above.

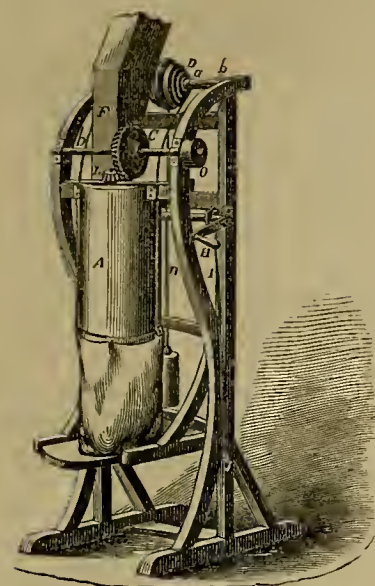
Fossil Bones.—The *Carson Register* says that portions of a monster pachyderm have been unearthed at the State Prison. The bones discovered consist of one-half of the lower jaw (containing the teeth), a horn, and petrified portions of the spinal column. The remains were found embedded in sandstone, about 45 feet below the surface. The teeth are about one-fourth of an inch thick (along the jaw bone), four inches wide (across the jaw), and five inches long. The teeth are about one-fourth of an inch apart. The surface of the teeth are agatized, and the petrified muscles of the jaw look ruby. One horn of the animal was found, and is in nearly a perfect state of preservation, being about eight inches in diameter at the base and fifteen inches long. How much of the jaw-bone was broken off by the blast which exposed it cannot be determined, but it is over two feet in length.



**Flour Packing and Weighing Machine.**

We have seen lately, at Wiester & Co.'s, on New Montgomery street, an invention designed for filling sacks or barrels with flour or any fine material, and at the same time weighing the substance into equal quantities. We give below an illustration of the machine, the operation of which may be described as follows:

The barrel or sack into which the flour is to be packed, is first placed around the lower part of the drain or cylinder, *A*, and secured in place by hooks, when a gate at the bottom of the hopper, *E*, located at *L*, is opened and held thus by a spring, not shown, while the flour is conveyed by a spiral conveyor or packer into the sack at the bottom of the cylinder. This packer is worked horizontally within the cylinder, *A*, by the bevel gear, *C*, operated by a hand crank on the shaft, *b*; or power may be attached to the pulley on the opposite extremity of the shaft. The flour, or other material to be packed, is fed in any proper manner from a convenient receptacle through the hopper, *F*. By the action of the spiral packer, the material is com-



pressed, as fast as delivered into the sack, to any reasonable degree of closeness.

The platform on which the sack is seen to rest is elevated by the pulley and weight, *D*, at the commencement of the operation, to near the bottom of the cylinder, *A*; the sack at the same time being brought up around and upon the outside of the cylinder. By this arrangement, the filling and packing commences in the bottom of the sack, and progresses gradually; the sack, with the platform on which it rests, dropping as fast as the filling goes on. This is so arranged by weights and springs, that when any desired amount of material has been placed in the sack, an automatic action closes the gate at the bottom of the hopper, and prevents the ingress of any more material. The machine can be adjusted to any desired amount, from twenty-five pounds upwards to 200 or more; the whole process of filling, packing, weighing and cutting off at the proper moment, being automatic in action, by the attendant merely turning the crank or shaft, *b*, or applying power to the pulley upon the same. The only attendance required is to place and secure the sack on the cylinder, as seen in the engraving, and to remove the same after being filled.

The invention appears to be a very useful and practical one. It is applicable to small grain, such as wheat, etc., as well as to flour and other pulverized material. It is extremely simple, light and does not appear to be particularly liable to get out of order. A working model of the machine may be seen at Wiester & Co.'s, 17 New Montgomery street (Grand Hotel), and we recommend flour packers and others to examine it.

**Henry Carey Baird.**

It will interest many of our readers to see the features of a man who has done so much towards helping on American industries, and who has for a quarter of a century occupied the position of leading publisher, in the English language, of practical treatises on scientific and mechanical topics.

The publishing firm of M. Carey & Sons was founded in 1793, and continued under different partnerships until 1849. Henry Carey Baird's connection with the house began in 1841, and at its dissolution he continued the business as sole proprietor.



HENRY CAREY BAIRD.

By means of the uncommon talents of which he is possessed, he has achieved a remarkable success, and his judgment and enterprise have made his name and publi-

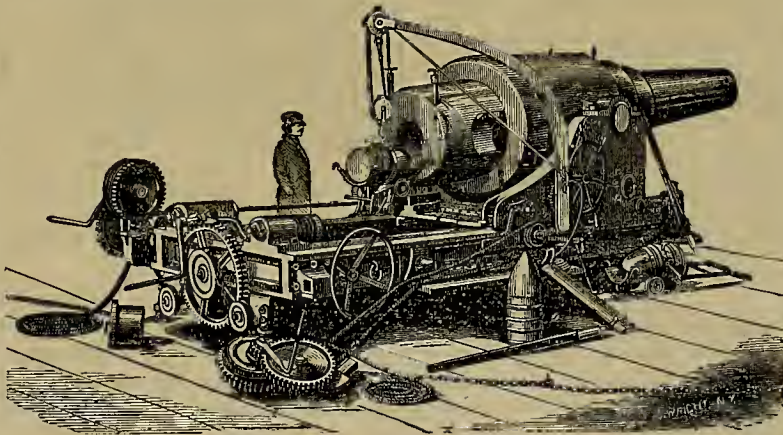
some of his views on one of the leading financial topics of the day.

We have had occasion to observe the introduction on this coast of many of his works, which have been received with much satisfaction, containing as they do the live information sought for in a condensed and applicable form for our American artisans and manufacturers.

His catalogue of practical and scientific books comprises 82 octavo pages, and includes one or more treatises on nearly every industrial subject. It will be sent free of postage to any one addressing Henry Carey Baird, Industrial Publisher, 406 Walnut street, Philadelphia.

**Krupp's Breech-Loading Cannon.**

A short time ago we gave an illustrated description of the enormous steel works of



KRUPP'S BREECH-LOADING STEEL CANNON.

ous most favorably known both in our country and in other lands.

The subject of this sketch was born at Frankford, Penn., on September 10th, 1825. His education has been such that he is now admitted to be an authority in his own departments of science; and he has also attained considerable eminence as a writer. He is a frequent contributor to leading journals and magazines, and has written several pamphlets on industrial and financial questions which have exerted a wide influence.

As an author his labors have been chiefly in the field of political economy. He is a strong advocate of a protective tariff, and we have a number of his pamphlets in answer to the arguments of the free-traders. We also publish elsewhere a letter of his to the Secretary of the Treasury, which will give an insight into

Krupp at Essen. We are now able to present our readers with a view of the famous Krupp breech-loading steel cannon, which has come so largely into favor in Europe, and to the great range and penetrating power of which the recent victories of the German armies are in a great measure attributed. The engraving (for which, with the description, we are indebted to the *American Artisan*) represents also the adjuncts employed in working the gun, and the devices which, from the great weight of the shot, are found essential in the operation of loading; the shot being lifted by a carrier slung from pulleys, themselves depending from a standard attached to the carriage. This latter is termed "a low self-acting casemate carriage." The gun represented is of 11-inch bore.

The bore extends throughout the entire

length of the gun; in other words, the breech-block being suitably withdrawn, the gun is open from end to end. The breech-block is of rectangular form and works laterally within an opening of corresponding form provided transversely in the breech. When withdrawn toward the left, the breech is opened and the projectile, being slung in line with the bore, is forced forward to its place, the breech-block is moved inward across the bore, closing the same at the breech, and is there securely fastened by devices not shown in the figure. The whole arrangement is very simple, compact and strong.

The largest Krupp guns used at the siege of Paris were 24-pounders, but the accuracy of these dismounted the opposing artillery, which was composed of the largest marine guns of the French fleet.

A 15-inch Rodman gun, weighing 3,900 lbs., has a penetrating power of 26.80 feet with 60 lbs. of powder, and of 43 feet with 100 lbs. A Krupp 24-pounder, weighing only 8,000 lbs. and with only 15 lbs. of powder, has a penetrating power of 47.70 tons. A ship armed with this light weapon would, it is asserted, be more than a match for any vessel with 15-inch guns. The gun here illustrated weighs about 6,000 lbs., charge of powder,  $4\frac{1}{2}$  to  $5\frac{1}{2}$  lbs.; weight of projectile, 55 to 60 lbs.

Such is the description which has been copied into several papers. But there must be some mistake with regard to the size of the gun and the charge of powder.

**Colorado at the Fair.**

We see that a strong attempt is being made in Colorado to have that territory represented at the coming Industrial Exhibition of the Mechanics' Institute in this city. Colorado is certainly capable of making a fine show here. She has great natural resources, and her people are most active and energetic.

The agent of the PRESS at Denver, Mr. M. W. Levy, will forward anything that may be left at his place of business for the exhibition; and we hope to have a fine agricultural show. The mining districts also are moving, and we notice that the *Central City Register*, a most energetic sheet, whose progress in ability we have long marked, and which we now consider one of the very best of our interior papers, is advocating the measure. We extract the following on the subject from its columns:

We think that Colorado can make quite as good a show in the way of rich ores of gold, silver, copper, lead, etc., as any other State or Territory in the Union, and that she should not neglect this opportunity of benefitting herself by so doing. In case no one is sent from here specially in charge of the ores, Mr. Murray, of the SCIENTIFIC PRESS, has kindly volunteered to take charge of them for us, and see that they have a prominent position in the Pavilion. After the exhibition, all specimens (unless specially requested to be returned to the owners) will be placed in the mineralogical cabinet of the Mechanics' Institute, whose property they will be, and where they will always be open to public inspection. Talk alone will not carry this enterprise through, but if our miners will take a little interest in the matter, and bring in specimens of their ores as above, we can send in as good a collection as any other mining country, and show our brethren of the Pacific slope that we are alive, and not afraid to compare ores with them. We are satisfied, too, there are persons enough here who would like to take the trip, to make up a nice, pleasant excursion party, and secure half-fare rates.

LAND MATTERS.—The General Land Office has decided that Agricultural College scrip may be received in payment for pre-emption claims, but not in payment of homestead claims, and all cases where it has been received for the latter are suspended.

THE CALIFORNIA ACCLIMATIZING SOCIETY has sent to the Caledonia farm, New York, for 1,000 black haws, to be placed in San Mateo county.

THE death of Alexander K. Johnston, the noted geographer, is announced by cable dispatch. He is well known from his "National Atlas," his "Dictionary of Geography," etc. He was born in Scotland, in December, 1804.



## DOMESTIC ECONOMY.

### The Art of Making a Pudding.

For this purpose wheat flour should be sifted and accurately measured, Indian meal scalded, tapioca soaked over night, sago and rice washed in several warm waters, dried bread rolled and sifted, the whites and yolks of eggs separately beaten; do not put them into hot milk or they will curdle; add the whites the last thing. Butter is the best shortening for wheat flour; but lard, suet and churn drippings are nice for corn meal.

Scald molasses and let it cool before using. Cream of tartar and yeast powder must be sifted with the flour, soda or sal volatile dissolved in lukewarm water and strained. A large amount of soda and saleratus is required for molasses; in using it with sour milk more or less should be used according to the acidity of the milk.

Raisins should be stewed, citron sliced very thin. Zante currants mashed and thoroughly dried, and all fruits well dredged with flour and added the last thing. Beating all the ingredients thoroughly insures a light pudding.

Batter puddings and custards require straining. Whether the pudding is to be baked, boiled or steamed, the dish or mold must be well greased. Bits of butter are sometimes put over the tops of baked custards to prevent their burning. We think steamed custards preferable. For boiling, four eggs should be allowed to a quart of milk, the milk placed in a tin pail in a kettle of boiling water.

Pudding bags should be made of strong, unbleached sheeting. Just before using, dip the bag in hot water, wring out, and dredge thoroughly with flour. Allow plenty of room for the pudding to swell. Place an old plate in the bottom of the pot to keep the pudding from being burned. Keep it well under water and the water constantly boiling. When done, dip the bag in cold water and the pudding will slide out in form.

For steaming, the earthen Turk's head is very common, and if well greased before the pudding is put in there will be no difficulty in preserving the exact form. More time is required to cook a pudding in steaming than in baking or boiling.—*Household.*

### Good and Diseased Meat.

Good meat is neither of a pale pinkish color nor of a deep purple tint. The former is indicative of disease, and the latter is a sign that the animal died from natural causes. Good meat has a marbled appearance, and the fat, especially of the internal organs, is hard and suety, and is never wet, whereas that of diseased meat is soft and watery, often like jelly or sordid parchment. Again, the touch or feel of healthy meat is firm and elastic, and it hardly moistens the fingers; whereas that of diseased meat is soft and wet—in fact, it is often so wet that serum (the watery part of the blood) runs from it, and then it is technically called *wet*. Good meat has but little odor, and this is not disagreeable; whereas diseased meat smells faint and corpse-like, and it often has the odor of medicine. This is best observed by cutting it and smelling the knife, or by pouring a little warm water upon it. Good meat will bear cooking without shrinking, and without losing very much in weight; but bad meat shrivels up, and it often boils to pieces.

All these effects are due to the presence of a large proportion of serum in the meat, and to the relatively large amount of intercellular or gelatinous tissue; for the fat and true muscular substance are to a greater or less extent deficient. The use of diseased meat not only affects the human constitution, but it is also certain that tape-worm, trichina, and other parasitical diseases are produced by it. Experience also points to the fact that carbuncles and common boils are in some degree referable to the use of the flesh of animals affected with pleuro-pneumonia; and occasionally we witness the most serious diarrhoea and prostration of the vital powers after eating diseased meat. It is, therefore, safest to forbid its use.—*Good Health.*

**KEEPING CIDER SWEET.**—Thomas Johnson of East Mecca, Ohio, informs the N. Y. Farmers' Club, that his custom is to make the cider designed for drinking as late as circumstances permit. Then, after three days or so, draw it off as carefully as possible, so as not to stir up the pomace. Then strain it through a woolen cloth into other clean barrels. Then put into each

barrel a half pound of mustard, ground or unground; bung your barrels tight; keep them in as cool a place as possible so as not to freeze. He has kept it in this way as sweet as when put up, as late as June or July. Remember, when you draw your cider off, don't let in any more air than sufficient to make it run.

### Oiling Floors for Kitchens.

I have, for several years, followed the plan of oiling uncarpeted floors, in order to avoid the labor of scrubbing them, and I find it works well. You can either oil or paint them, of course, but I consider the oiling preferable, on the following grounds: It is cheaper.

You can apply it yourself.

You have not to wait for it to dry.

It produces a pleasanter color.

It doesn't show tracks of dust, mud and such like; and, therefore, a floor thus prepared does not require so frequent mopping.

An oiled floor is better than a plain one in the following particulars:

It looks better.

It does not require scrubbing; which saves your back.

It is never to be mopped in hot water nor strong suds; which saves your hands.

Grease spots never hurt it; which saves your temper.

To prepare a floor, I take a quantity of the cheapest and least offensive oil I can secure, and apply it with a common paint brush. I put it on smoothly, so that it will strike in equally all over and yet not stand in spots on the surface. I do this at night, after the evening work is finished, and find the place ready for use the next morning. Of course it would not injure the oiled surface itself to tread upon it at once; but grease is liable to be tracked from it, at first, to adjacent parts of the house. A new coat of oil applied once in six months, or even once a year sometimes, is sufficient to keep a floor in perfect order.

One may thus prepare to great advantage the floors of kitchens, pantries, and summer-dining rooms, back halls, stairways and porticos, closets, bath rooms and laborers' bedrooms. It is also a good plan in children's apartments, particularly when you are training them to do their own room work, to leave bare that end or side of the floor under the bed stands, and to oil it. That portion of the floor under the bed can then be easily kept free from dust, the sweepings can be more readily removed, and the children will be afforded free scope for their duck-like style of ablutions, without danger to the carpet.—*Western Rural.*

### Pennyroyal for Fleas.

The oil of pennyroyal will drive these insects off; but a cheaper method, where the herd flourishes, is to throw your dogs and cats into a decoction of it once a week. Mow the herb, and scatter it in beds of pigs once a month. I have seen this done for many years in succession. Where the herb cannot be got, the oil may be procured. In this case, saturate strings with it, and tie them around the necks of dogs and cats; pour a little on the back and about the ears of hogs, which you can do while they are feeding, without touching them.

By repeating this application every 12 or 15 days, the fleas will flee from your quadrupeds, to their relief and improvement, and your relief and comfort in the house. Strings saturated with the oil of pennyroyal, and tied around the necks and tails of horses, will drive off lice; the strings should be saturated once a day.—*Scientific American.*

**How to Purify Cisterns.**—If they are very foul clean them out. If not, heat half a bushel of charcoal, and when in a glow, pound it into pieces as big as hickory nuts, and shovel them with the coarsest of the dust into a wet gunny bag or other coarse sack; put in a stone big enough to sink it, and, tying a cord to it, draw it up and down through the cistern; many leaving it suspended near the top of the water one day and near the bottom the next. The results will be observed very soon, and will be permanent for several weeks, when the operation may have to be renewed.

**To Boil Meat to perfection** it should be done slowly, in plenty of water. As the water boils away add more hot water. If boiled too quickly the outside of the meat becomes tough, and, not allowing the heat to penetrate readily, the inside remains raw. Boiled meat is best for invalids.

## Eastern Advertisements.



CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.  
CLEVELAND, O. LOUISVILLE, KY.

Established 1846.

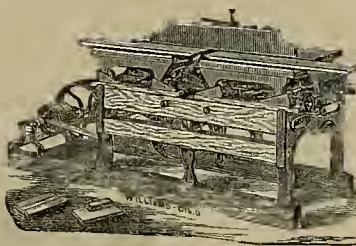
### Claims for our Safes and Locks are:

- 1st—They have never been Destroyed by Fire.
- 2d—They have never been Robbed by Burglars.
- 3d—They are Fire, Damp and Burglar Proof.
- 4th—They are Superior in Finish to any Safe made.
- 5th—Our Seven varieties of Combination Locks surpass any Locks made in point of Finish, Security and Simplicity.
- 6th—Our Locks have stood a Nine Days' Trial by experts without being opened.
- 7th—We will put from \$1,000 to \$10,000 behind them.
- 8th—Our Safes and Locks have ALWAYS taken the Gold Medals at all Expositions.
- 9th—Our Safes combine some 26 Patent Improvements, and consequently possess Superior Advantages, in point of Security, to any Safe made.

AN INSPECTION WILL PROVE  
the above assertions.

SAFES Delivered in San Francisco at Cincinnati Prices.  
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Jointing, Rabbling, Beveling, Panel-Raising,  
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Hand-Matching, Beading, Fluting, Sawing,  
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Car Furniture, Etc., Etc.

**THE MOST USEFUL,**  
Economical and Labor-Saving Machine of Modern Invention.

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Manufacturers of Wood Working Machinery, Etc.,  
HAMILTON, OHIO.  
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### Phoenixville Bridge Works

OF PENNSYLVANIA.

CLARKE, REEVES & CO.,  
ENGINEERS AND BUILDERS.

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new

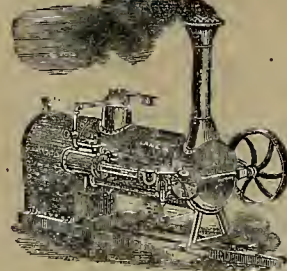
### Album of Designs,

showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street Philadelphia. ap8-ly

Established 1843.

LOUIS ESPENSCHIED,  
WAGON MANUFACTORY,

No. 1815 Broadway, St. Louis, Missouri.  
3y22-6ms



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STATIONARY AND PORTABLE

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WROUGHT IRON HEAD BLOCKS,

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STOUT, MILLS & TEMPLE,

PROPRIETORS OF THE

**GLOBE IRON WORKS,**

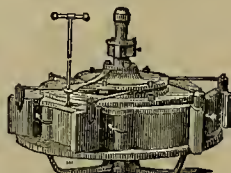
DAYTON, OHIO.

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equal to any Overshot Wheel.

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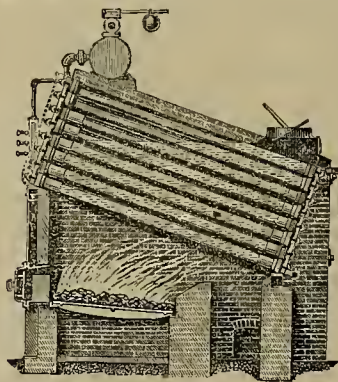
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Of all Descriptions, and General Mill Furnishing.

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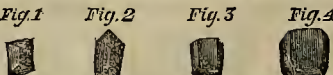
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Patent Shaped Diamond Carbon-Points.



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Trauing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to ap15-6m J. DICKINSON, 64 Nassau St., N. Y.



## Business Cards.

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STEEL PENS.

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Surveying Instruments made, repaired and adjusted  
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SAN FRANCISCO  
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Manila Rope of all sizes. Also, Bale Rope and Whale  
Line constantly on hand. Mailing Ropes of any size  
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TUBBS & CO., Agents,  
611 and 613 Front street.  
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HOBBS, GILMORE & CO.,  
Manufacturers of Boxes.  
Market Street, bet. Beale and Main.  
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,  
SEAL ENGRAVER,  
AND LETTER CUTTER.

Brass and Steel Stamps and Dies, 608 Sacramento street,  
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Grocery and Provision Store  
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MEERSCHAUM MOUNTED WITH SILVER. Meerscham  
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

The Merchants' Exchange Bank  
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Capital, One Million Dollars.

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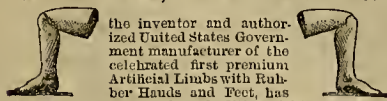
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This Favorite House is located on Jackson street, a  
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ducements for Families. The International Coach will  
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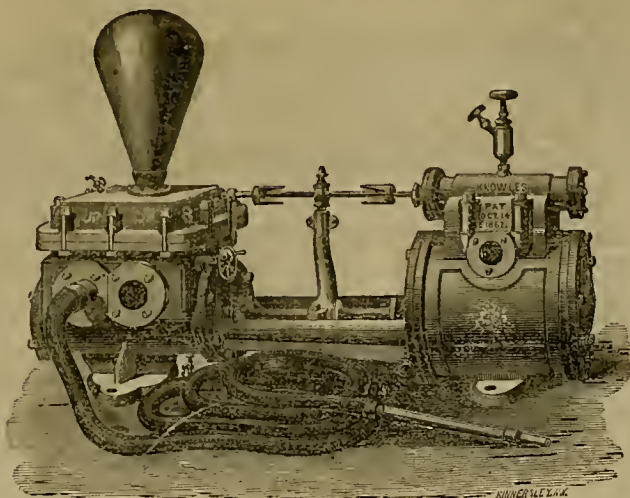
## ARTIFICIAL LIMBS.

A. A. MARKS, No. 575 Broadway, N. Y. City.



the inventor and author-  
ized United States Govern-  
ment manufacture of the  
celebrated first premium  
Artificial Limbs with Rub-  
ber Hauls and Feet, has  
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Pamphlet, of importance to all who have suffered am-  
putations, especially to officers and soldiers who lost  
their limbs in service. Copies sent free to applicants—  
21v1-13v12-12v

## KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous bead, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,  
SACRAMENTO, CAL., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly,

A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO.,  
PORTLAND, OREGON, April 22, 1871.

Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.

Yours respectfully,

G. MARSHALL, Chief Engineer.

MESSRS. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly,

C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.

MESSRS. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly

GEORGE M. REYNOLDS, Supt. Engineer.

MESSRS. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully,

WM. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDATQUA, Pa., June 1, 1871.

MESSRS. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc.,

EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO.,  
HELLERTOWN, Northampton County, Pa., May 26, 1871.

MESSRS. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.

Yours very respectfully,

G. W. WHITAKER, President and Superintendent.

MESSRS. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly,

P. SAULT, Superintendent.

CENTRAL AND WESTERN PACIFIC AND CAL. AND OREGON RAILROADS,  
OFFICE SUPT. W. M. P. & M., SACRAMENTO, CAL., July 8, 1870.

A. L. FISH, Esq., San Francisco—Dear Sir: Your favor of the 2d inst. is received, asking my opinion in regard to the Knowles Steam Pump, and would say I have used the Knowles Steam Pump for several years, and consider them for all purposes the best steam pump in use. Yours truly, E. F. PERKINS, Supt. M. P. & M.

OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc., JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

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P. S.—All kinds of new and second-hand Machines on hand.

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Of a far Higher Class than any other proprietary medicine of the day stands

Tarrant's Effervescent Seltzer Aperient.

And for this reason: it is an exact counterpart of one of the most valuable medicines in the world. We refer to the great Seltzer Spring of Germany, to which thousands of the dyspeptic, the bilious, the rheumatic, and the victims of venal diseases resort annually, and return to their homes convalescent or cured. The Aperient is one of the first, and by far the most successful, of all the efforts made to reproduce, in a portable form, the popular mineral waters of Europe. SEE THAT YOU PURCHASE ONLY THE GENUINE ARTICLE.

SOLD BY ALL DRUGGISTS.



The "PAIN KILLER" may justly be styled the great medicine of the world, for there is no region of the globe into which it has not found its way, and been largely used and highly prized. Moreover, there is no climate to which it has not proved to be well adapted for the cure of a considerable variety of diseases: it is a speedy and safe remedy for burns, scalds, cuts, bruises, wounds and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, it is admirably suited for every race of men on the face of the globe.

It is a very significant fact, that notwithstanding the long period of years that the "Pain Killer" has been before the world, it has never lost one whit of its popularity, but on the contrary, the call for it has steadily increased from its first discovery, and at no previous time has the demand for it been so great, or the quantity made been so large, as it is to-day.

Another significant fact is, that nowhere has the Pain Killer been in higher repute, or been more generally used by families and individuals, than it has been here at San Francisco, where it was first discovered and introduced. That the Pain Killer will continue to be, what we have styled it, THE GREAT MEDICINE OF THE WORLD, there cannot be the shadow of a doubt.—Providence Advertiser.

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Manufacturers and have constantly on hand

SPORTING,  
MINING,  
And BLASTING  
POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE  
MILLS. It being constantly received and transported  
into the interior, is delivered to the consumer within a  
few days of the time of its manufacture, and is in every  
way superior to any other Powder in Market.  
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives  
now in use, and the lifting force of the BEST BLASTING  
POWDER, thus making it vastly superior to any other  
compound now in use.

A circular containing a full description of this Powder  
can be obtained on application to our Office.  
16v20-3m JOHN F. LOHSE, Secretary.

## Manganese! Manganese!

We have on hand the Best and Purest  
article of Powdered Black Oxide of Manganese  
ever sold on this coast. Price, Sixty  
Dollars a Ton.

We also offer to consumers

Acids, Sulphate of Copper,  
CYANIDE OF POTASS,  
And Chemicals of all kinds at Lowest Prices.

FOR SALE BY

R. H. McDONALD &amp; CO.,

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BETTS'S CAPSULE PATENTS

are being infringed by importation of Capsules made in con-  
travention of his rights, which necessarily are numerous,  
BETTS being the original inventor and Sole Maker in the  
United Kingdom.

1, WHARF ROAD, CITY ROAD, LONDON, AND  
BORDEAUX, FRANCE.



## Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

## Aitona Gravel Mining Co.—Location of

works, Alta Hill, Grass Valley, Cal.  
 Notice.—There are delinquent upon the following described stock, on account of assessment No. 2, of 25 cents per share, levied on the 23d day of May, 1871, the several sums set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
C W Boynton.....	20	200	\$50 00
C W Boynton.....	104	50	12 50
Aaron Hooper.....	117	200	50 00
R W Sterling.....	66	25	6 25
R W Sterling.....	68	20	5 00
R W Sterling.....	69	20	5 00
R W Sterling.....	72	10	2 50

And in accordance with Law, and an order of the Board of Trustees made on the 23d day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at the auction room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Wednesday, the 15th day of July, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale.

DAVID WILDER, Secretary.

Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. 25v22-3t

## Eagle Quicksilver Mining Company—Location of

works, Santa Barbara County, California.  
 Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of June 1871, an assessment of Twenty dollars per share was levied upon the mines of said Company, payable immediately in gold coin of the United States, to the Secretary, at his office, Room No. 5, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Wednesday, the 14th day of August, 1871, shall be deemed delinquent, and will be advertised August 12th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California.

## Highland Silver Mining Company—Location of

works, Railroad District, Elko County, State of Nevada.  
 Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 13th day of July, 1871, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately in United States coin, to the Secretary, at No. 28 Merchants' Exchange, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 21st day of August, 1871, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 11th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.

Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. July 15-2d

## Marcelina Silver Mining Company—Location of

works, Eureka District, Lander County, Nevada.  
 Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 2d day of June, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
P P Cunningham.....	21	200	\$ 40 00
P P Cunningham.....	22	200	40 00
P P Cunningham.....	23	100	20 00
Chas W Dungan.....	25	60	10 00
Chas Elliott.....	6	187	37 40
Chas F Eaton.....	36	500	100 00
Thos Kittle.....	24	130	26 00
Jas M Maguire.....	26	20	4 00
Daniel McLeod.....	27	50	10 00
J H Nelson.....	41	500	100 00
C O Palmer.....	29	300	60 00
C O Palmer.....	30	100	20 00
C O Palmer.....	31	100	20 00
C O Palmer.....	32	200	40 00
C O Palmer.....	34	25	5 00
C O Palmer.....	35	25	5 00
C O Palmer.....	42	100	20 00
C O Palmer.....	43	100	20 00
C O Palmer.....	44	100	20 00
C O Palmer.....	45	200	40 00
C O Goodwin.....	unissued	6250	1250 00
Geo E Herrick.....	unissued	273	54 60
S L Hartmeyer, Trus.....	unissued	150	30 00
Wash Hayden.....	unissued	75	15 00
R O Ives.....	unissued	100	20 00
W H Lawrence.....	unissued	183	36 60
W H Lawrence, Trus.....	unissued	15	3 00
S V Lee.....	unissued	2000	400 00
John McKewen.....	unissued	293	58 60
C O Palmer, Trus.....	unissued	6875	1375 00
P B Quinlan.....	unissued	348	69 60
C J Riley.....	unissued	150	30 00
O R Worland.....	unissued	3000	600 00
Annie H Wilson.....	unissued	1135	227 00

An in accordance with law and an order of the Board of Trustees, made on the 2d day of June, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company room, No. 21 Haywards' Building, 419 California street, on Tuesday, the 1st day of August, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.

Office, Room 21, Haywards' Building 419 California Street, San Francisco, Cal. July 15-2d

## Mountain City Mining Company—Location of

mines, Coe District, Elko County, Nevada.  
 Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of June, 1871, an assessment of Twenty-five (25) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the company, No. 206 Front street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 15th day of July, 1871, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 206 Front street, San Francisco. 24v1-4w

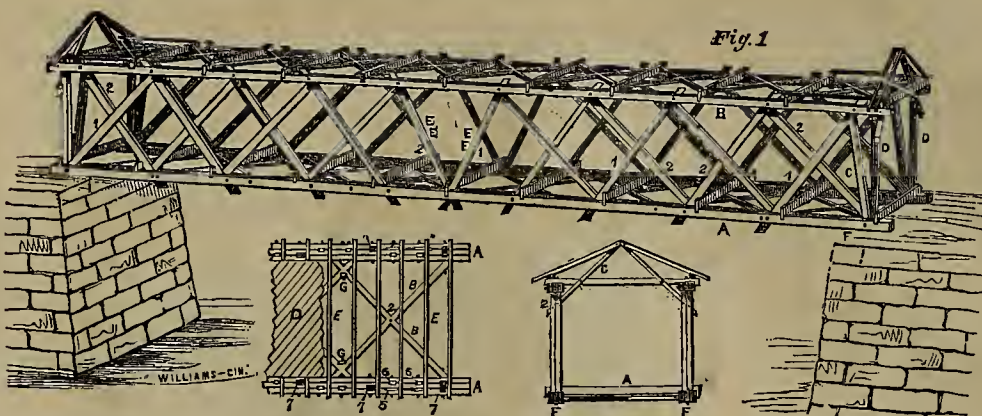
## Taylor Mill and Mining Company—Location of

works, Georgetown District, El Dorado County, State of California.  
 Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of July, 1871, an assessment of ten (10) cents per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the company, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which any assessment shall remain unpaid on the 15th day of August, 1871, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

SAMUEL S. MURPHY, Secretary.

Office, 520 Montgomery street, over Sather &amp; Co's Bank, San Francisco, Cal. July 15-2d

## PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

### ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.

The timber used is placed so directly in the line of strain, that less material is required to support the same load.

It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.

Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

W. H. GORRILL, President.

## Ophir Copper, Silver and Gold Mining Company—Location of

works, Ophir, Placer County, California.  
 Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 30th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Adrien, Mrs E.....	136	100	\$60 00
Adrien, Mrs E.....	185	12	7 20
Bromley, John.....	249	1	1 00
Blake, H H.....	196	5 1/2	3 30
Blake, H H.....	204	7 1/2	46 50
Blake, H H.....	214	27 1/2	16 50
Blake, H H.....	301	60	30 00
Choate, N.....	250	1	60
Higgins, Chas.....	251	1	60
Hamilton, Jo.....	252	1	60
Hamilton, Jo.....	198	6 1/2	3 30
Janison, B.....	253	1	30
Janison, S.....	254	1/2	30
Kip Jr, W J.....	237	500	300 00
Leahy, Joseph.....	255	3	1 80
Leahy, John.....	256	1	60
Miller, W E.....	187	32	19 20
Miller, W E.....	248	7 1/2	44 40
McMurray, Mrs E.....	257	1	60
Patton, James.....	258	1	60
Patton, James.....	259	5	3 00
Patton, James.....	260	1	60
Ringer, John.....	261	1	60
Ringer, John.....	262	1	60
Sickles, F.....	263	1	60
Swain, H O.....	294	60	30 00
Swain, H O.....	295	30	15 00
Swain, Wm B.....	9	5	3 00
Swain, Wm B.....	8	24	14 40
Shofer, John.....	264	1	60
Streeter, Chas.....	265	1	60

And in accordance with law and an order of the Board of Trustees, made on the 30th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, San Francisco, California, on Saturday, the 22d day of July, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. G. BRUSH, Secretary.

Office, No. 314 California street, San Francisco, Cal. July 8-3t

## Pinto Mining Company, Location of

Silverado, Pinto Mining District, White Pine County, Nevada.  
 Notice.—There are delinquent upon the following described stock, on account of assessment levied May 14th, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Leopold Jacob.....	1	60	\$ 7 60
Leopold Jacob.....	from 2 to 32	50	193 75
V H Ward, Jr.....	111	805	100 62
Henry G Langley.....	171	1,610	201 25
Elliot J Moore.....	173	1,610	201 33
Robert & Johnson.....	213	321 1/2	40 21
Erasmus Olsen.....	212	10,000	1,250 00
G B Arrowsmith.....	not issued	1,610	201 25

And in accordance with law, and an order of the Board of Trustees, made on the 24th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the 17th day of July, 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco. 26v22-3t

## MINING BUREAU

OF THE

## PACIFIC COAST.

Authorized by the Miners' Convention, held at Sacramento, January 31, 1871.

Parties desirous of having Mining Property REGISTERED and EXAMINED may apply personally or by letter to

J. BERTON,

Vice-Consul of France, President,

Sacramento, Cal.

Or to

COL. HARRY LINDEN,

Member of the Board of Directors, S. W. corner California and Montgomery streets, Room 3, San Francisco, Cal.

Copies of By-Laws furnished upon application. 22v18-4f

## Sierra Iron Company—Location of

works, Sierra and Plumas Counties, California.  
 Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 17th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L E Pratt.....	14	500	\$300 00
L E Pratt.....	15	500	300 00
L E Pratt.....	16	500	300 00
L E Pratt.....	17	500	300 00
Mary A Starkweather.....	18	10	6 00
Mary A Starkweather.....	19	10	6 00
Josephine Starkweather.....	20	10	6 00
Herbert J Starkweather.....	21	10	6 00
Mary E Sallery.....	22	180	108 00
Mary E Sallery.....	42	5	3 00
Mary E Sallery.....	43	5	3 00
Mary E Sallery.....	44	5	3 00
Mary E Sallery.....	45	5	3 00
Mary E Sallery.....	46	10	6 00
Mary E Sallery.....	47	10	6 00
Mary E Sallery.....	48	10	6 00
Mary E Sallery.....	49	10	6 00
Mary E Sallery.....	50	20	12 00
Mary E Sallery.....	51	100	60 00
James S Dav.....	23	60	30 00
R A Cochran.....	32	500	300 00
R A Cochran.....	33	500	300 00
R A Cochran.....	34	500	300 00
R A Cochran.....	35	250	150 00
R A Cochran.....	36	250	150 00
R A Sawyer.....	37	50	30 00
Leverette S Davis.....	56	300	180 00
C Hilton Stribner.....	68	50	30 00
Thos Mansfield.....	67	300	180 00
Wm Mansfield.....	27	25	15 00
Wm Mansfield.....	59	50	30 00
D J Syddow.....	60	100	60 00

And in accordance with law, and an order of the Board of Trustees, made on the 17th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the company No. 428 California street, San Francisco, on the 20th day of July, 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

OALEB T. FAY, Secretary.

Office, room No. 7, 428 California street. 26v22-3t

## POWER, TAITER &amp; CO.,

MANUFACTURERS OF



## WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut Street Bridge), PHILADELPHIA.

Woodworth Planers a Specialty. 2v23-1y

## J. HOOVER'S

## FINE CHROMOS,

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The Changed Cross.

The Faithful Shepherd.

The Beautiful Snow.

Delhi; a charming, picturesque view.

The Holy Family.

Are among his new and successful publications. Send for catalogue of his own choice chromos and foreign prints. 2v23-8m

## OCCIDENTAL

## Insurance Company

OF SAN FRANCISCO.

ash Capital,..... \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHCHILD, Secretary. 20v17

## Metallurgy and Ores.

## RODGERS, MEYER &amp; CO.,

## COMMISSION MERCHANTS,

## ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

## CONSIGNMENTS OF GOODS.

4v16-3m

## Richardson &amp; Co., Copper Ore Wharves, SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

## LOUIS FALKENAU,

## STATE ASSAYER,

## Analytical and Consulting Chemist,

421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

## LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

## Assayer and Metallurgical CHEMIST.

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO, CAL. 7v21-3m

## NEVADA METALLURGICAL WORKS.

19 and 21 First st., in Golden State Foundry.

## ROTTE &amp; LUCKHARDT.

Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

## CALIFORNIA ASSAY OFFICE

No. 513 CALIFORNIA STREET,

One Door West of Montgomery.....SAN FRANCISCO.

## J. A. MARS, Assayer.

Analysis of Ores, Mineral Waters, etc. 10v20

## SELF-ADJUSTING

## CAR COUPLER COMPANY,

GLOVERSVILLE, NEW YORK.

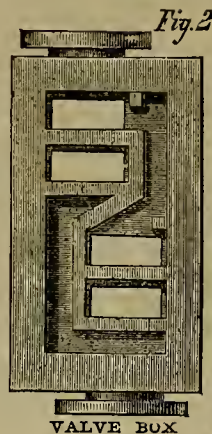
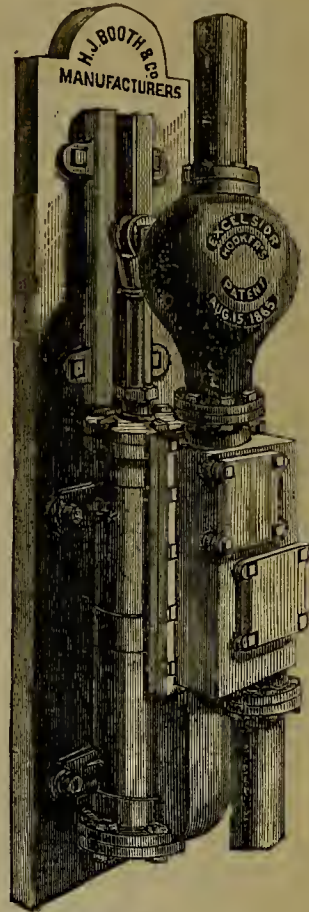
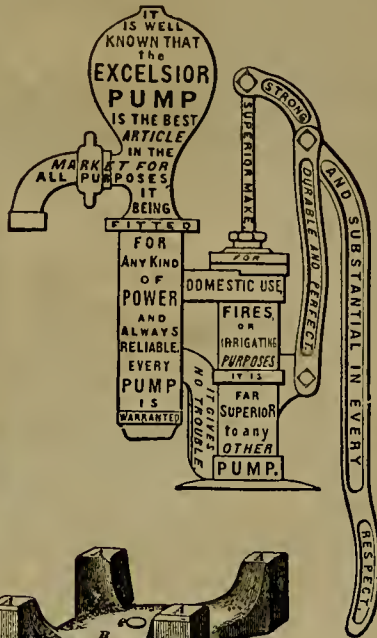
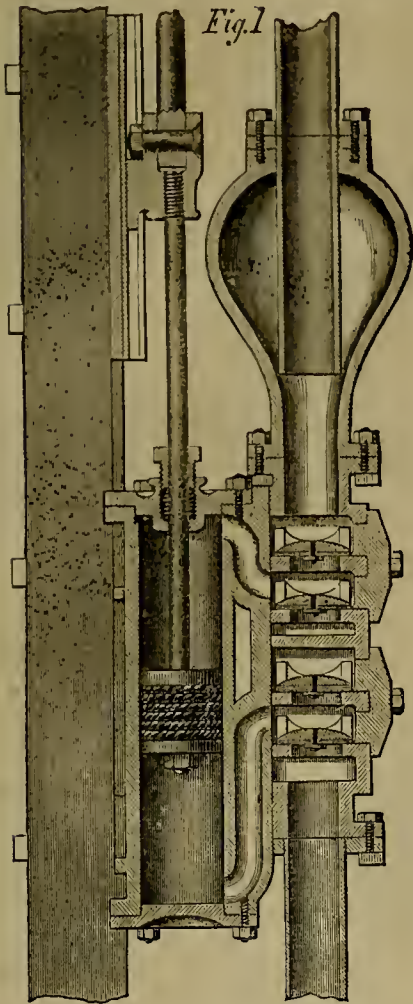
J. B. VEDDER,.....Patentee.

L. P. JOHNSON, Pres't. D. B. HUTCHINSON, Treas.

DIRECTORS: L. H. PALMER, J. B. VEDDER.



EXCELSIOR IMPROVED DOUBLE-ACTING SUCTION AND FORCE PUMP.  
HOOKER'S PATENT, August 13, 1865, and January 15, 1867.



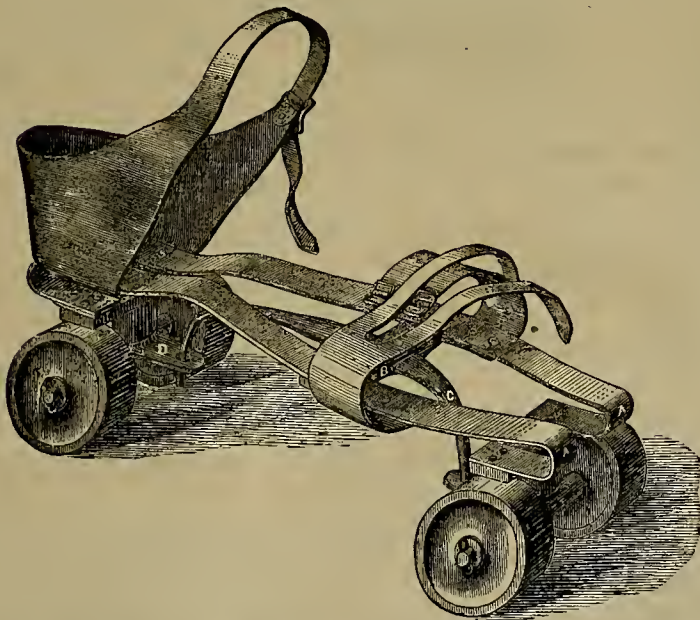
We call the especial attention of all Millwrights, Miners and Farmers to this very superior Force Pump. It is more simply constructed, more durable, and has larger and more direct ports for receiving and discharging water, and warranted to furnish more water than any other pump of equal caliber. It has Poppet Valve, which can not be wrongly placed in the Pump. The Fair of the Mechanics' Institute, held in the city of San Francisco, awarded the owners of this Pump, for its SUPERIORITY, A FIRST PREMIUM AND SILVER MEDAL. Suitable for DEEP WELLS, Factories, Mining, Breweries, Sugar Refineries, Tanneries, Railroad Purposes, Drainage, Irrigation, etc. As the above Pumps are already in use in the principal Sugar Refineries, Factories, Rolling Mills and Gardens in this city, reference may be had where they are working. See circular (11).

General Agents.—MESSRS. BRITTAN, HOLBROOK & CO., 111 and 113 California street, and 17 and 19 Davis street, are Agents for the sale of the Excelsior Pump, who make liberal discount to the trade. H. J. BOOTH & CO., Union Iron Works, First Street, corner of Mission, San Francisco, who manufacture and have the sale of the Excelsior Pump. V. CUSHING, Proprietor, San Francisco.

We have BRASS-LINED, BRASS PISTON and BRASS VALVE PUMPS, at greatly reduced prices. Also STEAM PUMPS.

BOONE'S C-SPRING ROLLER SKATE.

PATENT GRANTED.



This SKATE surpasses in Elasticity, Durability and Ease of Operation, any other Skate in existence. Its superiority has been proved wherever it has come in competition with any other Roller Skate.

FOR DESCRIPTION SEND FOR DESCRIPTIVE CIRCULAR.

Warranted to run longer without requiring to be repaired than any other Skate.

Owners of Rinks will find it the most profitable as well as the most satisfactory to their patrons. The patentees guarantee the right to run this Skate to purchasers of rights for the full term of the patent, and

Warrant it to be no Infringement on any Existing Patent.

State, County, Town and Rink Rights for sale at reasonable terms.

Apply by letter or in person to

WILLIAM SMALL,

105 Montgomery Street, S. F., Cal.,

General Agent for the United States.



JOHN WRIGHT,

MANUFACTURER OF ALL KINDS OF

MINERS' AND RAILROAD PICKS,

All Adze-Eyes, of Superior Quality.

13 AND 15 FREMONT STREET, AT NELSON & DOBLE'S, SAN FRANCISCO.

List of Prices of Picks.

No. 1 Round Eye Surface, 4 lbs.	\$18	No. 17 Drifting, 4 1/2 lbs.	\$20
No. 2 " " 4 1/2 lbs.	18	No. 18 " 5 lbs.	22
No. 3 " " 5 lbs.	18	No. 19 " 5 1/2 lbs.	22
No. 4 " " 5 1/2 lbs.	20	No. 20 " 6 lbs.	24
No. 5 " " 6 lbs.	24	No. 21 Poll " 6 1/2 lbs.	20
No. 6 " " 6 1/2 lbs.	24	No. 22 " 7 lbs.	20
No. 7 " " 7 lbs.	24	No. 23 " 7 1/2 lbs.	22
No. 8 Flat Eye Surface, 4 lbs.	20	No. 24 " 8 lbs.	22
No. 9 " " 4 1/2 lbs.	20	No. 25 " 8 1/2 lbs.	24
No. 10 " " 5 lbs.	20	No. 26 " 9 lbs.	24
No. 11 " " 5 1/2 lbs.	22	No. 27 " 9 1/2 lbs.	30
No. 12 " " 6 lbs.	22	No. 28 Coal " 10 lbs.	12
No. 13 " " 6 1/2 lbs.	24	No. 29 " 11 lbs.	12
No. 14 " " 7 lbs.	24	No. 30 " 12 lbs.	14
No. 15 Drifting, 3 1/2 lbs.	18	No. 31 " 13 lbs.	14
No. 16 " 4 lbs.	18		

Also, Pick Eyes, Ready for the Steel, for Blacksmiths,

WHICH WILL BE SOLD CHEAP.

PRICES, FROM \$14 TO \$18.



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Quartz, Flour and Saw Mills.

Hayes' Improved Steam Pump, Brodie's Improved Crasher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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Steam Engines and Boilers,

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N. B.—Sole Agents for sale of HUNTON'S CELEBRATED PATENT GOVERNOR.

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235 TO 245 FIRST STREET,  
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And are thereby enabled to manufactureMACHINERY, CASTINGS & BOILERS  
AT EASTERN PRICES.

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing.

8v20q

**PACIFIC**

Rolling Mill Company,

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Established for the Manufacture of  
RAILROAD AND OTHER IRON  
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Every Variety of Shafting,Embracing ALL SIZES of  
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames**HAMMERED IRON**

Of every description and size.

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The highest price paid for Scrap Iron 9v14m

J. O. CALDWELL, President. REESE LLEWELLYN, Superintendent.

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Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

**CAST IRON PIPE,**  
FOR WATER AND GAS.

PIPE of all sizes, of a very superior quality, is now being made at the

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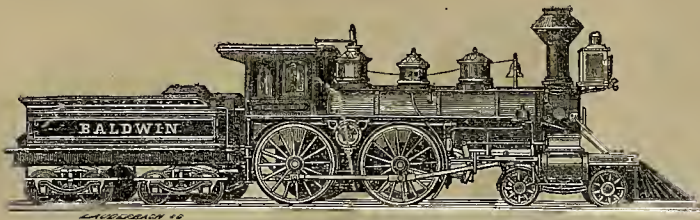
In this city, under the Patents of Farrar & Whiting.  
23v22-3m GODDARD & CO.

McAFEE, SPIERS &amp; CO.,

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ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

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EDWARD H. WILLIAMS,WM. P. HENSZEY,  
EDWARD LONGSTRETH.

WILLIAMS, BLANCHARD &amp; Co., Agents, 218 California street, San Francisco, Cal. apl-cow26t

**NIAGARA STEAM PUMP WORKS.**

FIRST PREMIUM

American Institute, 1867 and 1870.

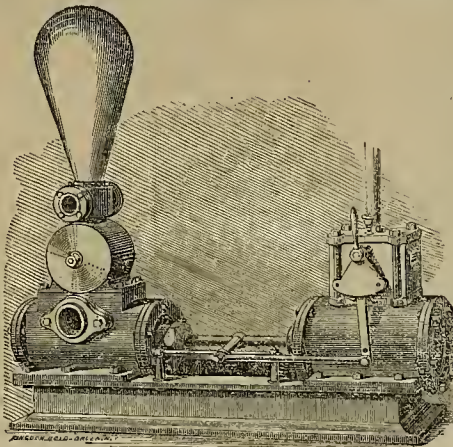
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Hardick's Patent Double-Acting  
Steam Pump  
and Fire Engine.PATENTED IN ENGLAND, BELGIUM AND  
FRANCE. SEND FOR CIRCULAR.

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**VULCAN IRON WORKS,**

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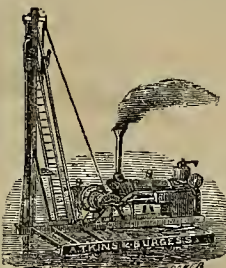
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STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND

GENERAL MACHINERY

CASTINGS

MADE TO ORDER.



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**THE GRICE & LONG LOCOMOTIVE WORKS,**

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

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23v22-3m

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

**BOILERS**

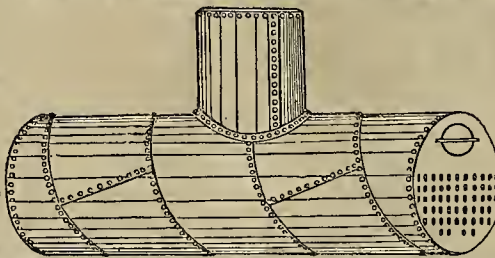
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DESCRIPTION

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Steam Engine Builders, Soller Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

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The best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded. Send for Circular. PARKER & HUNT, Southeast cor. Tenth & K Streets, Sacramento City Cal. Agents—Gus. F. Brock, 117 California st., San Francisco; KEEF & BARDON, Stockton. Can be seen at McAFEE, SPIERS & Co's. Boiler Works, S. F. 21v21-21

## WHY THE WILSON

### Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the townships, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

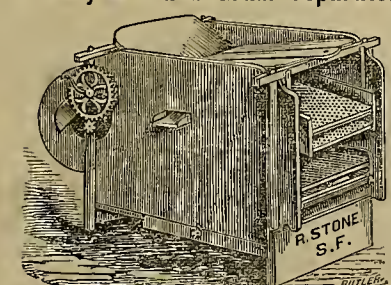
to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbly," but call and investigate its merits. One can always be seen at the Pacific Iron Works. Ten of these Mills are now in operation. For further particulars address

FURMAN R. WILSON,  
San Francisco.

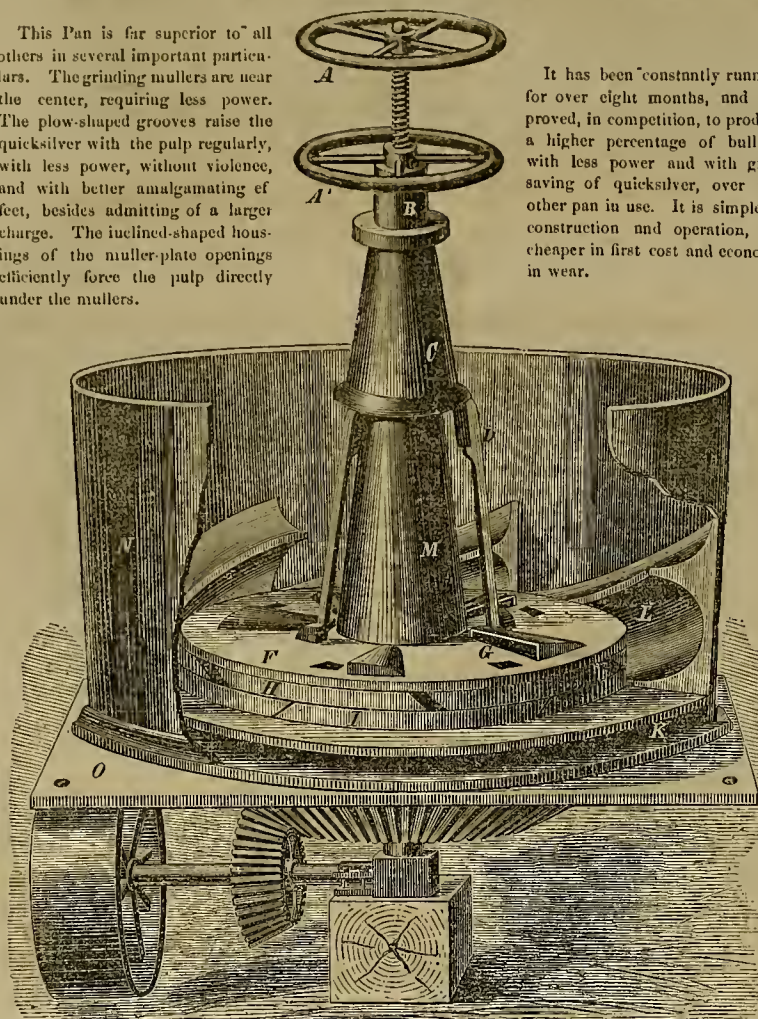
### THE PATENT Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired. For further information apply to R. STONE, 25v22-3m 422 Battery street, San Francisco.

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This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

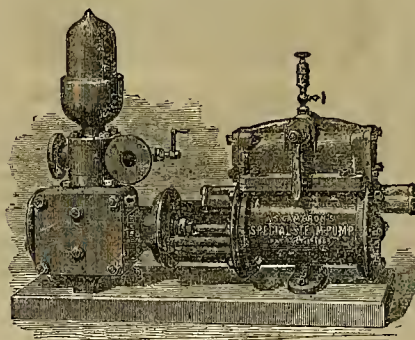


It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.

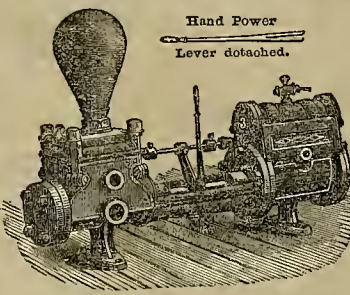
Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation. 15v20-1mr,lmrft

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GIFFARD'S  
INJECTORS.  
BARTOL'S  
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Surface Condensers.  
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## BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast, as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility having no cams, nor complex rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used on Railroads and Steamboats; in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them; we claim for it that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by BERRY & PLACE, Machinery Depot, 112 and 114 California st., San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.

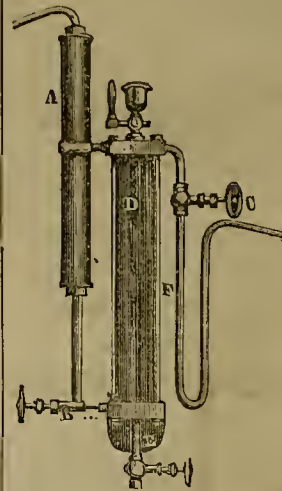


Hand Power  
Lever detached.

HOOKE'S Improved DEEP-WELL Pump  
Lift and Force.  
BERRY & PLACE, 112 and 114 California st., S. F.

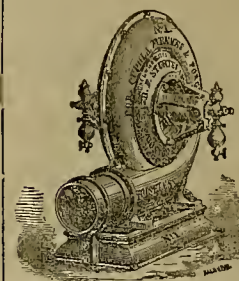
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No. 10 Stevenson Street, near First, SAN FRANCISCO.  
We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22f

## GARRATT'S CONDENSING LUBRICATOR.



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION.—D is a glass chamber which contains the lubricant. C is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the operation of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C.



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PRESSURE  
BLOWER.  
Are for sale by  
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112 California st.,  
San Francisco,  
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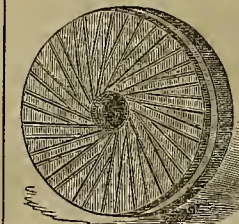
## Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows: The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated. Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed. Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

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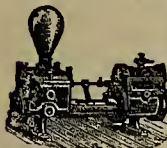
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Season Tickets admitting gentlemen and one lady \$5 00  
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The above Tickets are not Transferable.

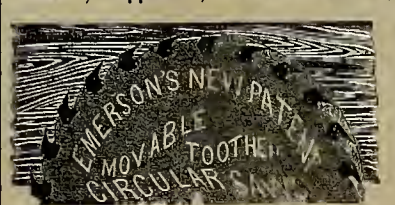
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Tickets can be obtained from any of the Managers, at  
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Passenger Sunday excepted	Express Train Daily	JULY 9, 1871.	Express Train Daily	Passenger Sunday excepted
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:45 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.
5:30 P.M.	9:30 A.M.	San Jose	5:20 P.M.	12:15 P.M.
7:58 P.M.	12:21 P.M.	Stockton	1:28 P.M.	8:35 P.M.
9:35 P.M.	2:10 P.M.	Sacramento	11:4 A.M.	7:00 A.M.
	4:10 P.M.	Marysville	9:10 A.M.	
	7:50 P.M.	Seema	5:40 A.M.	
	2:30 P.M.	Sacramento	11:45 A.M.	
	5:25 P.M.	Colfax	8:45 A.M.	
	1:15 A.M.	Reno	1:00 A.M.	
	9:10 A.M.	Winnemucca	4:05 P.M.	
	12:00 M.	Battle Mountain	1:25 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	6:20 A.M.	Ogden	5:20 P.M.	

SAN JOSE BRANCH.—LEAVE SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 3 p. m. daily. Returning  
leave San Jose at 7:30 n. m., daily, and at 3:50 p. m., daily  
(except Sundays).

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, "5:50  
8:00, 9:10, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
LEAVE BROCKLYN, "5:15, "6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 8:10, and 10:10 p. m.

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a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

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5:30 to Fruit Vale only).  
LEAVE HAYWARD, "4:30, 7:00 and 10:45 a. m., and 3:30 p. m.

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# SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

DEWEY & CO.,  
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SAN FRANCISCO, SATURDAY, JULY 22, 1871.

VOLUME XXIII.  
Number 3.

## Double-Acting Plunger Pump.

The expenses of mining have steadily increased from year to year with increasing depth of mines and the larger amount of machinery made necessary by this and various other causes well known among our practical men. Everything therefore tending to lessen these expenses is of interest to our miners and is eagerly investigated by them. As the miners go deeper there comes the want of a reliable pump, one that shall work with economy, and at the same time entail the least cost for repairs. Our attention has recently been called to this subject by an article in the *Eng. and Min. Journal*. At the first opportunity we examined the pump personally, and by careful inquiry satisfied ourselves as to the truth of the statements.

"A steam pump for mining purposes must fulfil so many different requirements, that those of ordinary modes of construction, though performing admirably above ground are of little use. The water to be lifted varies greatly in character. In some cases so large a proportion of sand is present that great heaps accumulate at the outlet. Mine waters often contain acids which quickly destroy the iron in contact with them. The pump which we illustrate this week, owes its very peculiar form to the fact that it was designed for a mining pump that should fulfil all the requirements made upon it.

"The displacement or plunger system was adopted because it is the only one which allows all leakages to be made external. To do this, however, and make the pump double-acting, it was cut into two parts and the ends separated by means of a fixed stuffing box. In other words, there are two single-acting pump cylinders, with one plunger between them. This allows easy access to the stuffing-boxes upon their inner ends, and brings all leaks to the outside, where they can be seen. At the same time the loosening of a few nuts holding the followers in place allows easy access to the main packing-box, which, if necessary, may be repacked in a few minutes. Fibrous packing is generally used in the place of metallic, on account of the ease with which it is replaced, and the small wear occasioned by sand, dirt, etc. The plunger has a clearance in the cylinder, so that sand and gravel will not wear either plunger or cylinder itself.

"Each end of the single cylinder has its own valve-chest. These valves have an opening area equal to that of the plunger. The valves are separated from the cylinder by a little more than the thickness of the walls, thus reducing the length of the pass-

ages to the minimum. The chests are connected by pipes of large size (the internal diameter being equal to the diameter of plunger), upon one of which the air chamber is situated. The position of the air chamber is optional, as it may be placed at the end of either valve chest, as the case may require. The position of the discharge pipe may be varied in the same way, as well as the section, which is no small advantage where room is limited. Upon the top of the valve-chests hand-plates are arranged, so that easy access may be had to the valves, and that without the use of any tools whatever, simply by unscrewing the hand-lever nuts. The valves themselves are seated upon oak-tanned leather. The hinges are of metal.

"The main valve is a plain, flat, slide valve, of the "B" pattern, and above this, in a separate cylinder, is the auxiliary or

a little, the pump began to work, and continued to do so until the mine was clear. In another case, instead of floating the pump upon a raft, and allowing it to pump out a shaft, flexible connections were made, and the pump lowered to the bottom. This was in a coal mine, where fuel was of no account compared with time and labor.

"In case of wear or accidental breakage of any part of a pump, an order by telegraph or mail will bring a new part by first express, as all the parts are made to interchange and fit, that but little time need ever be lost by a break down."

This pump is manufactured by Messrs. Knowles & Sibley, 90 and 92 Liberty street, New York City. Their agent for this coast is Mr. A. L. Fish, No. 9 First street, San Francisco, who is ready to supply this or any other pattern from the same manufacturers. They have also a large pump

## The New Alloy of Copper and Iron

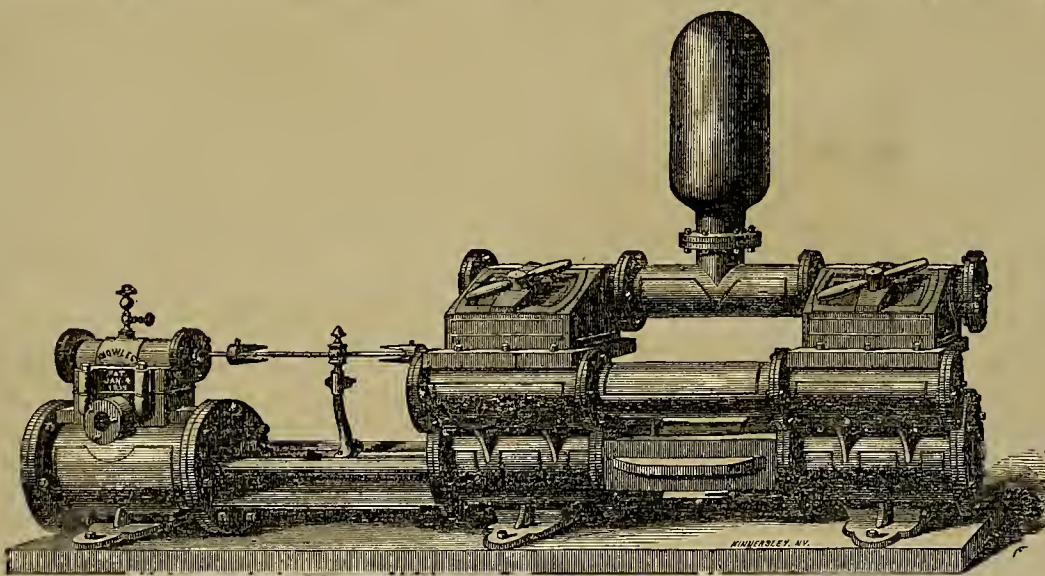
We have been asked with regard to an alloy of copper and iron said to have been discovered by a gentleman of this city. The inventor is Dr. Siegfried Meyer, who has been a practising physician and has devoted considerable time to the production of such a composition. We have seen the doctor, who gives us the following in regard to the matter:

The alloy is composed of copper and iron, united in certain proportions to form a substance which can be tempered to a hardness greater than that of steel, and can be easily worked. It can be used with great advantage for such articles as shoes and dies of stamp mills, for instance, and on account of its great hardness will outlast by a very considerable length of time those now made of chilled cast iron, while they can be manufactured just as cheaply. Moreover, the alloy is of such a nature that it is not liable to oxidation on exposure to the atmosphere. The principal object of the invention is, however, to make a malleable metal which can be tempered to the utmost hardness, and which therefore can replace steel in many of its applications, while being much cheaper. The mode of manufacture constitutes the doctor's secret.

In order to be able to do what he desires on a large scale, the doctor desires to dispose of an interest in his rights. Any letters may be addressed to Dr. Siegfried Meyer, San Francisco; or any addressed to the care of this office will perhaps be more certain of arriving at their destination. The doctor has left us a sample of his alloy, which can be examined here by any interested in the matter.

**CHLORINATION WORKS IN SISKIYOU.**—Mr. Deetkin, formerly of Grass Valley, says the *Yreka Union*, has been erecting chlorination works for the Black Bear Mill on Salmon River. These are now complete and reduce from three to four tons daily. The sulphurets yielded on first trials, \$65.40 to the ton. A large amount is on hand, the accumulation of years.

**MILL SUPPLIES.**—We know, from good authority, that Messrs. Travis and Wagner, 41 First street, are good workmen, and we commend them to our readers. They do a large business in manufacturing, repairing and rebuilding mill stones; have some very good portable mills, of different sizes, for grinding feed, paints, drugs, etc.; are agents for Dufour's bolting cloths, which have a high reputation; manufacture and dress mill picks in the best style; and provide all sorts of mill furniture.



DOUBLE-ACTING PLUNGER PUMP FOR MINING PURPOSES.

driving valve which drives the main side valve. The arm upon the main piston rod merely opens the steam connection with the small steam cylinder. This makes its stroke and moves the main valve. This motion is positive, and will work, even though under a head of water instead of steam, with cylinder and passages also filled with water. There is no danger of the motion injuring itself, as it is cushioned by steam at each end of the cylinder, and remains quiet through the whole length of the stroke until the moment for changing the valve. This positive motion is of great value, as a case in point will show. We are informed that, by a sudden flood, a mine containing one of these pumps was drowned out, and the pump submerged to a depth of 86 feet. It was at first proposed to grapple for the pump (at the bottom of a shaft) and hoist it up, breaking the connections, when it was suggested, that it would be well to turn on steam and see whether it would work. After some little discussion steam at 80 pounds to the inch was turned on. After

for a coal mine, of ordinary manufacture, except that, as the waters contain considerable corrosive matter, all the parts coming in contact with these are made of bronze or gun-metal.

**EIGHTH INDUSTRIAL EXHIBITION.**—As there seems to be some confusion as to the date before which applications must be made for space at the coming Industrial Exhibition of the Mechanics' Institute, and the date before which articles for exhibition must be sent, we give the following: The latest date on which applications for space will be received has been extended to July 25th, and the latest date on which articles for exhibition will be received is August 12th. The Fair will commence on August 8th, and continue four weeks. In answer to an invitation sent to President Grant to be present at the opening exercises, a reply has been received to the effect that the President, although unable to come on in time for the opening, will be at the Exhibition about the middle of August.



## MECHANICAL PROGRESS.

**NEW GALVANIC GAS LIGHTER.**—Prof. Klinkerfuss, of Göttingen, has invented an apparatus for igniting gas and other lights. As regards gas lights, we condense from the *Sci. Am.* Each lamp-post has its own galvanic apparatus, and the galvanic pair touches the liquid only during the short space of lighting up. An hermetically closed vessel is provided with a compartment or bell, open at the bottom, so as to communicate with the main vessel, and having a galvanic pair of zinc and graphite fixed to the cover in such a manner that the solution of bichromate of potassa and sulphuric acid, in the lower part of the vessel, is not reached by them when the apparatus is in its usual inactive state. A pipe leading to the burner of gas flame, passes, air proof, through the cover of the vessel and is immersed in the liquid, thus shutting off the outer air from communication with the upper part. The latter is filled, above the above named liquid, with illuminating gas supplied from the gas works, and as the pipe which passes through the cover is of sufficient length to hold the hydrostatic column raised by the small and nearly constant pressure usual in gas pipes, it takes the place of the last stop cock in the supply pipe. By another pipe leading to the bell from a station at any required distance, the air in the upper part of the bell can be rarefied, and thus the liquid in the hermetically closed vessel can be sucked up, lowering the surface so that the escape of the gas through the pipe leading to the burner is first opened, and then, on continued suction, the zinc and graphite plates are reached by the liquid. At this point the galvanic circle is closed, and the platinum wire over the mouth of the pipe leading to the burner becomes heated, and acquires sufficient catalytic power to kindle to a flame the hydrogen contained in the gas jet. After this is effected, a slight remission of the sucking power in the pipe is made to sink the level below the galvanic plates, in order to avoid unnecessary exposure, but without shutting off the escape of the gas. In order to make sure of this effect on all the lamps, a model apparatus must be placed at the station, corresponding in all respects to those of the lamps. The putting out of the light is effected by opening the sucking pipe to the access of atmospheric air, thus restoring the previous state of equilibrium, and, at the same, preventing differences of temperature in different parts of the sucking pipes to cause partial suckings, and thus stop the correspondence in the working of the apparatus on the different lamps. This apparatus may be attached to any ordinary gas pipe, and is easily removed, when required, for the purpose of a revision.

**IRON PAPER.**—THE THINNEST YET.—The *London Mining Journal* records the production of the thinnest sheet of iron ever yet seen, and records the history of similar sheets. We condense. In 1851 a Pittsburgh (Pa.) firm produced a sheet with a surface of 44 in., weighing 69 grains, and 1-1800th of an inch thick. A Welsh firm next made one of the same surface weighing only 46 grains. Staffordshire, England, produced still thinner sheets, which, reduced to the same standard would weigh only 33 and 31 grains respectively. After these came sheets which would weigh reduced to the standard of a surface of 44 inches 23½ and 23 grains respectively. But the Upper Forest Tin Works, near Swansea, have capped the climax. They have produced a sheet, 10x5½ inches, weighing 20 grains, which is but 16 grains for 44 surface inches, and it requires 4,800 placed side by side, to make 1 inch in thickness. This stands on record as the thinnest sheet of iron ever rolled. The thinnest sheet of tissue paper to be purchased measures the 1200th part of an inch; is 4 times as thick as this.

**NEEDLE MAKING.**—The latest invention of importance in the needle trade is a pointing machine, of English origin. A grooved grindstone, revolving at great speed, grinds the end of each wire into the desired shape. To this grindstone the wires are applied from an inclined plane, on which a number are placed cut to the length required. By means of a disc, surrounded with caoutchouc, revolving slowly in a direction transverse to the grindstone, a continuous supply of wires rapidly revolving in succession is supplied to the stone, and the same disc causes the wire to revolve while being pointed. Redditch,

in Worcestershire, England, employs 8,000 people in making needles, and is the trade center of Great Britain. The principal seat of industry on the continent is Aix-la-Chapelle, hut at Lyons, and one or two towns in Normandy, the common qualities are largely made. The Chinese supply their own requirements, and it is thought that the craft is more ancient in the Celestial Empire than in Europe. Certain it is, that round-eyed needles were made in China long before the primitive square-eyed ones were known in England.—*Mechanics' Magazine.*

**NEW TRANSIT INSTRUMENT.**—A new transit, Heller & Brightley's, is described in the *Proceedings of the Amer. Philosophical Society*. It is a "long center" transit, with plates ribbed, so as to get equal strength with less weight, which detaches as easily as the "short center," but keeps all the centers covered and not removable from the instrument, and leaves the tripod-head and legs with the four levelling-screws, etc., to be carried by the assistant. It is steadier than, and weighs one-half as much as, the ordinary long center. It has an improved tangent screw, which will never get "lost motion" by wear. This is effected by means of a long cylinder nut, from whose interior ¼ of the screw has been removed; into half the recess thus left in the nut is fitted a cylindrical follower, with the same length of screw-thread as the nut, fitted with a key that allows longitudinal motion but prevents it turning in the recess. In the remaining half of the recess is placed a strong spiral spring, between the fixed nut and the movable follower, with tension enough to force these apart and thus remove any lost motion which may occur in the screw. The tangent screw is attached to the plates by a modification of the gimballing of a ship's compass. A new eye-piece and improved lenses give a clear and sharply defined field of view, and one so flat that the cross hairs are without parallax in any part of it, and micrometer hairs or stadia can be used. Platinum cross-hairs, 1-1000th of an inch thick, are used. The screws are lubricated with plumbago. A simple arrangement of the clamps on the axle of the transit, makes it answer the purpose of a pair of compass sights for taking off-sets.

**DIMENSIONS OF NARROW GAUGE ENGINES.** It appears that a narrow gauge locomotive, with driving wheels 36 inches in diameter, and cylinder with 16 inch stroke, at a speed of 36 miles per hour, develops the same speed of piston as a full gauge locomotive with 5 feet driving wheels and cylinder with 24 inch stroke, at a speed of 40 miles per hour. With driving wheels 40 inches in diameter, and 16 inches stroke of piston, the narrow gauge locomotive develops the same travel of piston in going one mile as does the full gauge locomotive with 60 inch driving wheels and 24 inch stroke of piston. Equal speeds are therefore attainable on the narrow as on the full gauge. The angle of stability of the narrow gauge locomotive, with 3 feet driving wheel, is somewhat greater than that of the common locomotive with 5 feet driving wheel. Many interested in the success of the narrow gauge system have been puzzled to understand why engineers claim equal safety and speed for the former with the wider gauge. The above facts give the reasons for these claims.—*Iron Age.*

**MACHINE FOR FOLDING, PASTING AND TRIMMING PAPERS.**—Messrs. Chambers & Co., of Philadelphia, have invented a new machine, which they have made for *Every Saturday*, of Boston. The *Record* says: It is the only machine of the kind in the world, and is really a wonder in its working, accomplishing the various processes of folding, pasting and trimming at one operation. The two sheets of which *Every Saturday* is composed are fed in at opposite ends, taken up by the machine and carried toward each other, while by a series of automatic movements they are folded, trimmed and pasted in transit; arriving simultaneously at the center of the machine, the smaller sheet is placed accurately inside the larger one, and both receive their final fold and are deposited carefully in the box placed for them, a perfect paper. This operation is repeated, when the machine is at its highest speed, 30 times per minute, without mistake or variation.

**BRONZE BUST OF IRVING.**—A colossal bust of Washington Irving is to be erected in Prospect Park, Brooklyn, New York. With the pedestal, it will be 14 feet high. All the work has been done in the U. S.

## SCIENTIFIC PROGRESS.

**AMERICAN TELEGRAPHIC HISTORY.**—In Prof. Morse's address at the unveiling of the statue in New York City Central Park, he alluded to the history of the telegraph in the U. S. We condense: To Alfred Vail, of Morristown, N. J. with his father and brother, is due the first important aid in the progress of the invention. Aided also by Professor Gale, the telegraph appeared in Washington in 1838, a suppliant for the means to demonstrate its power. To the Hon. F. O. J. Smith, then Chairman of the House Committee of Commerce, belongs the credit of a just appreciation of the new invention, and of a zealous advocacy of an experimental essay, and of the inditing of an admirably written report in its favor, signed by every member of the committee. It was nevertheless thrown aside among the unfinished business of the session; and now commenced days of trial. Years of delay were yet before it. It was not till 1842 that it was again submitted to Congress. Ferris, and Kennedy, and Winthrop, and Ayerigg, McClay, and Wood, and many others, rallied to its support, and at length, by a bare majority, the bill that was necessary was sent to the Senate, where it met with no opposition, and was passed the last night of the session. Now commenced a new series of trials. To Ezra Cornell is due the credit of early and effective aid in the superintendence and erection of the first public line of telegraph ever established. Notwithstanding the success of the experimental essay, another important step was necessary ere the invention could demonstrate its vast utility. It was not until the skill and experience of the best Postmaster General that ever held that office, the Hon. Amos Kendall, were brought into requisition, that, amid many discouragements, the various companies were organized, and in the hands of such enterprising men as Sibley, Swain, and Wade, and a host of determined men, this vast country was webbed with telegraphic wires.

Another grand stride was yet to be taken ere international communication could be established. In October, 1842, the first submarine telegraph cable was laid by me in one moonlight night, in the harbor of this city, which proved experimentally the practicability of submarine telegraphy, and from the result of this success I ventured, the year after, in a letter to the Secretary of the Treasury, to predict the certainty of the Atlantic Telegraph. It was then believed to be a visionary dream; and had the individual carrying out of so bold an enterprise depended upon me alone, it might still have been a dream. But at this crisis another mind was touched with the necessary enthusiasm, admirably fitted in every particular to undertake the novel attempt.

To Cyrus W. Field, more than to any other individual, belongs the honor of carrying to completion this great undertaking. Associating with himself Cooper, and Taylor, and Roberts, and White, and Hunt, and Dudley Field, and others on this side of the Atlantic, and, two years later, Peabody and Breet, and Brooking, and Lampson, and Gurney, and Morgan and others in Great Britain, making the ocean but an insignificant ferry by his repeated crossings, undaunted by temporary failures and unforeseen accidents, he rested not till Britain and America were united in telegraphic bonds—the Old and the New World in instantaneous communication.

**COMPRESSED SLACK COAL.**—The *Iron Age* says that the process of E. F. Loiseau has been tried in Philadelphia with good results, on anthracite waste, and has been successfully used for four months at Nashville, Tenn. Only 7 per cent. of clay is used. The fuel is rendered water-proof (which is necessary) by dipping the prepared balls into a liquid composed of 18 lbs. rosin and 3 gals. gasoline, or benzine, to the ton of fuel. The coal is sufficiently compact to allow transportation and storing, burns nicely, produces but little ash and no cinder, ignites readily, and maintains its shape until thoroughly consumed. It answers well in heating and cupola furnaces. It is now retailed at \$5 per ton.

**OZONE ACTS ON EXPLOSIVE COMPOUNDS.** It has been found, says the *Journal of Ap. Chem.* that ozone will decompose nitroglycerine into nitric acid and glycerine acid. Nitro-cellulose (gun-cotton) and nitro-mannite yield nitric acid and oxalic acid. When gun cotton undergoes spontaneous decomposition, a similar class of compounds is produced, but what is rather remarkable in this case is the fact that

sealed packages of gun cotton are more likely to decompose spontaneously than open ones, as if the ozone was generated in the closed bottle and not in the open one. Air rich in ozone will cause the explosion of several of the nitro compounds. It would be interesting to know if the explosion of powder mills could not be traced to the action of an unusual quantity of ozone generated by thunder storms in the air, rather than to the direct action of the lightning. The powerful decomposing action of ozone calls attention to it as a useful agent in many branches of manufacture, and the importance of devising some way of generating it economically and in large quantity is more pressing than ever.

**ELECTRICAL SHADOWS.**—In a paper in the *Amer. Jour. of Science*, Prof. A. W. Wright, of Williams College, admits the possibility of the impression of outline images upon the surfaces of other objects. He says:—"The formation of the electrical shadow, discussed in my former paper, as has been suggested by Mr. C. F. Varley, who has more recently obtained results similar to those there described, appears to afford a satisfactory explanation of a singular and very interesting phenomenon, which has occasionally been observed in the case of objects struck by lightning, especially of persons killed by it. A number of instances are on record where the person struck was found to have, impressed upon some portion of the body, a delineation of something near him at the time of the stroke, and a similar effect has been noticed, also, in the case of inanimate objects. The experiments in the production of the electrical shadows show that it is merely necessary that the object should interrupt the lines of action of the electricity, and that it may be at a considerable distance from the electrified cloud, the chief and indispensable condition being that the latter should be negatively electrified. We should then have the body exposed to the lightning, perfectly electrified by induction, and, as the tension became sufficient, the dark discharge accompanied by the glow would take place, followed by the lightning stroke. If, then, any object should be in the path of the discharge, its image would be formed in the glow, and this might, in rare cases like those recorded, be sufficiently intense to leave a permanently visible impression."

**FIXING MAGNETIC LINES.**—Prof. A. M. Mayer has invented a very perfect method of fixing the figures produced by iron filings when set in momentary vibration on a surface over a magnet. He wets a clean glass plate with shellac, dries it, places it over, and just touching, a magnet or magnets, with its ends supported on wooden rests. Iron filings are then uniformly sifted over the plate, and the spectrum produced by tapping it with a copper wire. A heated cast iron plate is then placed over the glass plate (which has been cautiously removed), and the iron filings, absorbing the radiated heat, sink into the softened film of shellac and are thus fixed. Plates thus produced serve for the most accurate measurements upon the magnetic field, can be photographed or used as lantern slides. They give most perfect images of the magnetic curves.—*Mech. Mag.*

**LITHOFRACTEUR,** as we learn from *Engineering*, although extensively used in Germany for over two years, has just been introduced into England. It is the invention of Prof. Engels, of Cologne, and consists of nitro-glycerine as a base, gun cotton, the constituents of gunpowder, some chlorates, and infusorial earth. These substances are mixed in special ways (kept secret) until they form a black putty-like compound, which is made up into paper cartridges, 4½ inches long and ¾ inch in diam., weighing 1¼ ozs. each. When lighted in the air by ordinary means, it burns quietly, but when ignited by a cap it explodes violently. Various attempts to explode it by most violent shocks, as in railroad collisions, failed, while its power in quarries, mines, etc., when exploded by the cap, was tested most successfully.

**BOILING POINT OF GLYCERINE.**—Says the *Chem. News*: When the pressure in the still is reduced to 12.5 m. m., chiefly water goes over. When the boiling point under constant pressure has risen to 179.5° F., perfectly pure anhydrous glycerine condenses in the receiver. Under a pressure of 50 m. m., glycerine distills over unchanged at 210° C. 2 parts glycerine and 3 parts water freeze at 112° F.; 1 part glycerine and 1 part water, at 6° F.; 1 part glycerine and 3 parts water, at 20° F.



## CORRESPONDENCE.

## A Trip to Colorado—2.

[Written for the PRESS.]  
Scenery about Denver.

At Denver I find myself in a favored spot. Here we have fine views of the snow-capped ranges and of prominent peaks far distant, yet easily seen through the clear atmosphere. Of the scenery here much has been said and written. I have been told that, in this respect, the place vies with Berne, in Switzerland. I acknowledge never having visited this last named city, and therefore am strongly convinced that Denver beats it.

And I have some serious reasons for this conviction. Around Denver you can find scenes of rural prosperity and beauty—a fertile soil, a charming climate, coal, iron and copper mines. Some forty miles off, you reach Central City and its gold mines. Georgetown is ten hours distant with her treasures of silver. On the road to the latter place—a beautiful road—in South Clear Creek valley, are cold and warm soda springs, great luxuries for the traveler. Beyond it lies Gray's Peak, said to be 14,245 feet high, the "apex of the North American Continent." You can easily get to the Parks of Colorado, wonderful places, to mountain lakes and peaks too numerous to mention. Not only does the region afford natural scenery which may or may not equal that at Berne, but it also affords many other features of surpassing interest, the existence of which around Berne I am not aware of.

## Manufactures.

Denver is a busy place, with manifold signs of rapidly increasing prosperity. I am now writing on paper made in the vicinity, not in Denver exactly, but at Golden (by the Golden City Paper Co.) not far off. Denver imports quite largely from California. I am told that annually \$50,000 worth of California fruits is sent to Colorado, and I see California blankets everywhere.

There are three banks and banking houses here, six churches, a convent, two large seminaries and two free schools. There are two flouring mills, three planing mills, a woolen mill, a foundry, pottery, brick yards, wagon factories, jewelry factories, etc., etc. There are four hotels, the American, Sargent's, Broadwell and Tremont, all respectable, I am told, but the first two of the highest standing. There are gas works for supplying the city with light.

The Denver Foundry and Machine Shop, James W. Jackson, does a fine business in mining machinery, sawmills, flour mills, etc. The Denver Woolen Mills commenced operations last August, with \$50,000 invested in building and machinery. This is known as a 3-set mill, has also 2 blanket looms and 5 narrow looms. It employs 12 hands, and has manufactured goods of the value of \$5,000 in four months. Good Merino wool is worth 28 cents wholesale. I visited the mill, and was pleased with its appearance.

There are three newspapers published here. The *Rocky Mountain News* is the pioneer paper of the country, and is well edited and conducted. The *Colorado Tribune* is an interesting sheet, published daily and weekly by Walker & Woodbury. The *Herald* is a weekly journal.

The U. S. Branch Mint or Assay Office is located here, and its operations are conducted in the most satisfactory manner, under the management of J. L. F. Schirmer.

During the month of June, the Branch Mint received 7,838.54 ounces of gold bullion, valued at \$132,179.03; of silver bullion, 810.22 ounces were received, amounting to \$1,028.92. The total value of receipts was \$133,207.95. The bullion made two hundred and eighteen gold bars, and two of silver.

## Stages—Railroads—Items.

Denver is the point of departure of the stages for Georgetown, Central and other mining districts; also to Pueblo, 150 miles south, Trinidad, 225 miles, Fort Lyon, 300 miles, and Santa Fé, 450 miles south.

Four railroads terminate here: the Kansas Pacific, the Denver Pacific, the Colorado Central, and the Boulder Valley. The building of the Denver and Rio Grande, from Denver to Colorado City, Pueblo, Cañon City, San Luis Park, and

finally to El Paso, New Mexico, will give this place a very large amount of trade. All the bonds for the first 80 miles of this road have been sold, rails have been bought in England and shipped via New Orleans and St. Louis, and 1,300 tons are now on the way. The officers of the road are W. J. Palmer (President), R. H. Lamhorn (Vice-President), W. H. Greenwood (General Manager) and J. P. Mersereau (Chief Engineer.)

But I might write all day concerning this place. A few items more must suffice. One important article of trade here is coal. It is brought hither from five different mines: Hazelton's, in Jefferson county; Eulmer's, Briggs', Murphy's and Marshall's, in Boulder county. These are respectively 18, 19, 22, 23, and 25 miles distant. The average price is \$9 per ton. The lumber business is a large one, and there are six large lumber yards here. The total value of Denver manufactures last year is given as nearly \$600,000. Smelting works in the vicinity are talked of. The cattle business is bound to be an important one.

## Colorado Agricultural Society.

The Colorado Agricultural Society has grounds and buildings about two miles from the city in a fine location. It has in view the interests of the whole Territory, and the advancement of all industries, mining, agricultural and manufacturing. The first annual exhibition was held here in 1866, and was a success. The next one will commence on September 12th, and continue until the 16th. I predict that this too will be successful, judging from the interest shown here. The officers are as follows: President, H. B. Pearce; Secretary, Fred. A. Clifton; Treasurer, Frank Palmer; Executive Committee, W. N. Byers, G. T. Clark, J. E. Bates, J. H. Veasey, H. G. Bond; Superintendents of Classes—Class A, Agricultural, F. C. Taylor; Class B, Mechanical Arts and Agricultural Implements, E. A. Willoughby; Class C, Farm Products, etc., C. H. McLaughlin; Class D, Horticulture and Floriculture, Chas. Ruter; Class E, Fine Arts, John Armor; Class F, Geology and Mineralogy, Prof. F. Schirmer; Class G, Poultry, Sheep, Swine, etc., M. M. Trimble; Class H, Horses, etc., John E. Force; Class I, Cattle, J. L. Bailey.

W. H. M.

## Swamp and Salt Marsh Lands.

EDITORS PRESS:—As there appears to be much more interest manifested in our swamp lands, in the last two years, than previously, perhaps it would be as well for you to republish an article given by me in 1865 to the *Rural Home Journal*, on the modes of reclaiming such lands, and growing rice in South Carolina, by a cousin of mine who was a large rice planter there.

## Trunks and Gates.

The trunks and tide gates described by me have been in use for many years, and have been found to answer the purpose better than any others. The advantage of these is that being hung on upright pivots, ten or eleven feet long, the gate opens and closes with a smaller pressure of water, and is less likely to be obstructed—the pivot rod being above the water does not rust and prevent the gate from shutting close down as the hinges do below the water,—and if necessary to irrigate or flood the lands as has been the case this year on some of the reclaimed tule land on the San Joaquin, it can be done by leaving the outer gate open without the necessity of watching the tides—being self-adjusting. Several years since I gave the plan to a friend, who tried them on the San Joaquin and found them to work very well.

## Ditches.

In some cases it may be necessary to make the center ditch under the embankment, but I think from the examinations I have made that the banks of the rivers and sloughs are generally firm enough to omit it. The trouble in the experiments made here, is that the ditches have been too small and the dyke or embankment is placed too near the ditch; the latter should be from 12 to 15 feet wide, and the levee at least ten or fifteen feet from the ditch, and made only sufficiently high to keep out ordinary floods and tides, and with a greater slope on the outside next the river; then sown immediately with timo-

thy or some other good sod grass that would keep the levee firm and solid. The levees here have been built too much like a wall, the sods placed on it like adobe bricks, the peaty soil of which they are composed becomes dry and light, above the water line, leaving large cracks, and are liable to float off on the first flood. I do not think it is policy to levee against such floods as we had in 1862.

## Reclaiming Salt Marsh.

The salt marsh around the haye, if properly reclaimed and rightly managed, cannot fail to be very productive. A levee one foot above the highest ebbing tides will be amply sufficient. During the winter, keep the inner gates closed, flood the lands as often as possible from the rains and with fresh water streams from the uplands; then in the spring sow it down in grass for pasture or hay. In the Eastern States such lands reclaimed and sown with timothy, red-top and clover have produced from a ton and a half to three tons per acre, also good crops of corn, rye, broom-corn, sugar beets and mangel-wurtzel have been obtained. C. D. GIBBS, C. E.

## Suspension Chutes for Loading Vessels.

ENS. PRESS:—The great improvement now being made in this vicinity is the suspension chute at Pigeon Point.

This important work has been undertaken by Messrs. Moore and Templeton, the former of your city, the latter of Redwood City.

The "Suspension Chute" is a California invention, and is another illustration of the skill, wisdom and perseverance of the American people in overcoming all obstacles to production and progress.

The bluff shores of California, and the scarcity of small harbors, have been great drawbacks to coast-wise traffic. To this, add the fact that many fertile valleys and valuable forests are cut off from the interior by the "Inner Coast Range," and we readily see that the cost of shipment often equal, if it does not exceed, the first cost of production. This evil is partly overcome by the use of "Suspension Chutes." They have been tried in Sonoma county, and have given much satisfaction.

B. C. Bell, who has built six, and won some reputation for skill and reliability, has charge of the construction of the present one, which is, I understand, the largest he has undertaken to build.

## The Mode of Construction.

The work will be 600 feet long, commencing level with the bank, and extending out to 40 feet water. I cannot, without a sketch, give all of your readers a clear idea of the structure, but will give a general description—such as I can with words and figures.

The inner and middle portion of the wharf is built upon frames of various heights, according to the nature of the bluffs. The outer end of the permanent wharf is 50 feet above water, supported by double bents. The three outer, lower bents are let into the solid rock two feet, and tamped with asphaltum. The posts are sheathed by yellow metal for five feet. They are held down and in place by strong iron rods, tightened by turn-buckles. Beyond the outer bent the wharf projects 60 feet, supported by brace work.

The suspended chute is hinged in three nearly equal parts, and is 102 feet long. This is suspended from a boom, which is itself suspended from shears or masts, 77 feet high. All of this suspended work projects 162 feet beyond the self-supporting part of the wharf.

The standing rigging is all of iron. The main braces for tower or shears are 1½ inch wire rope; other braces ¾ inch wire rope. The whole is well supported and braced by wire ropes attached to eye-bolts, let into solid rock. The main eye-bolts are of 3-inch iron, and are let into the rock 3 feet, and leaded. The effort is thus made to form a structure which will keep its place during our southeast storms.

The chute is double—one side for lumber and wood, the other for produce and the truck when unloading vessels. This can be raised or lowered to suit the tide or the size of vessels, which are moored in 40 feet water.

The total cost of construction is estimated at \$10,000. In connection with this work, and by far the most expensive, is a

## Wooden Canal

From the head waters of the Gazos creek to the sea board, about 7 miles in length, and a tramway about 1½ miles in length, leading to the head of the wharf.

This canal is 48 inches in width at top,

and is designed for floating lumber, timber, firewood, etc., to the place of shipment.

Already 5 miles of canal are in operation, and the work will be pushed steadily on to completion. Perhaps a month more will see the chute in operation, if not the completed canal and tramway.

JESSE ARRI.

Pescadero, July 13.

## Smelting at White Pine.

EDITORS PRESS:—In my communication published in the SCIENTIFIC PRESS of June 24, a single error occurs in my table of deductions. The figures for commissions, dress, etc., at 20 per cent., should be \$567, instead of \$467, as printed; for example, the advance, at \$90 per ton, for 31½ tons, is \$2,835.20=\$567.00. But as this estimate of loss is twice as much as it should be, and as it will make no material difference in the quotient of profits, you can do as you please about correcting it. For I now find, from information furnished me by competent authority, that there were 37½ tons of bullion produced, instead of 31½ tons. Also, that there was no freight-charge to Hamilton, as given in the table. These additions make a difference in favor of the smelter as follows:

6 tons of bullion additional at \$90 per ton.....	\$540.00
Freightage allowed to Hamilton.....	126.00
Add profits as per table.....	299.50
Total .....	\$965.50

From which must be deducted the freight charge for 6 tons to San Francisco, at \$35 per ton, and \$1 per ton for drayage, leaving as net profits the sum of \$731.25. Make the loss on commissions and dress but 10 per cent., and the figures stand thus:

One-half of \$567.00.....	\$283.50
Profit for ten days' run.....	\$1,014.75
Besides the silver in the additional 6 tons, \$324.	

Your compositors have in one case corrected my punctuation and thereby falsified my grammar. If, however, they follow my punctuation, my grammar will generally be found correct. For instance, one sentence was originally written, "The fact is, Messrs. Editors, our smelters, not content with the lion's share of the proceeds of our mines, which they were always sure of, have desired, to use an expressive White Pine phrase, to 'hog it all.'" I am a little sensitive on this point, and you must please forgive my criticism.

TRUTH-TELLER.

Shermantown, Nev., June 30, 1871.

## A Prediction.

ENS. PRESS:—Allow me to call your attention to a fact—a little out of the way in mining—but one in which many have been deeply interested on both sides. It is a prediction in relation to the late "unpleasantness" between France and Prussia, made years ago by Sir. Walter Scott.

In his "Marmion," introduction to Canto Third, 3d verse, he speaks of the old hero, the star of Bradeburg, "Brunswick," and of his untimely fall; of Prussia overthrown at Jena; of the wrongs and woes of Germany in consequence of defeat; and concludes by saying:

"And when revolves, in time's sure change,  
The hour of Germany's Revenge;  
When, breathing fury for her sake,  
Some new Arminius shall awake;  
Her champion, ere he strike, shall come  
To whet his sword on Brunswick's tomb."

As this prophecy has not made its appearance in any of the periodicals of the day, allow me to call your attention to it.

C. B. N.

Durango, Mexico.

## Thimble Skein Wagons, Etc.

EDITORS PRESS:—I have often asked well-informed persons why there is so much difference of opinion on the subject of iron axle and thimble skein wagons, and as I have not received a very satisfactory answer as yet, I have thought it might be answered by some of your readers, and perhaps important to not a few. Some prefer an iron axle wagon to a thimble skein, saying it runs lighter, being equal in other respects; but some prefer the thimble skein, giving the same reasons. Some want the chambered boxing, as in the Studebaker wagon; others the straight boxing, as in Soule's Improved Wagon, of Sacramento, who says his thimbles are on the principle of the Concord coach wagons and better than all others. C. L. SEE.  
Nicolaus, 1871.



## MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

### California.

#### ALPINE COUNTY.

**RICH COPPER ORE.**—According to the *Monitor* the Globe management has been offered \$50 per ton for their copper ore on the dump.

#### AMADOR COUNTY.

**THE MINERS** are quiet and willing to go to work at the following wages: The men working underground to receive \$2 50 and \$3 per day, and those working on top to receive the wages they were getting before the strike. It is the impression of the *Amador Ledger* that work will soon be commenced on a basis satisfactory to all concerned.

**THE MINES.**—*Ledger*, July 15th: At this writing, all our mines and mills are in operation with all the men they can find employment for. The prospects are that there will be no further difficulty about getting all the help that may be required to keep both the mine and mills in constant operation from this on.

The *Sentinel*, Jackson, July, 15th: says that for some time past teams have been passing our office every day, heavily laden with quartz, being hauled from the Blackwell ledge to the Occidental mill.

#### GALAVÉRAS COUNTY.

**WORK**, says the *Chronicle* is steadily progressing on the old Foot & Thompson quartz lead near Rich Gulch Flat. The tunnels are so badly caved that it is extremely difficult to open them, with the force employed, but the mine will soon be placed in condition for working.

The *Chronicle* gives encouraging accounts from the gravel mines. The What Cheer mine has assumed considerable prominence of late. The hoisting works are of the most substantial character, and the mine is in the hands of practical men.

The Shaw claim, a mile and a half from Mokelumne Hill, is the most extensive mine in the county, and has yielded more gold than any other. The sluices are 800 feet in length, and to secure the requisite fall required a tunnel 400 feet. They are cleaned up twice a year. Owing to a scarcity of water the mine is now closed for the season.

The Bracket & Brucker rank among the best in the district, and has been a paying institution for years. The gravel is crushed in a 5-stamp mill. The mine is paying well.

Bates, Barry & Co., half a mile from town, have a tunnel 12,000 feet long. They have met with many discouragements and difficulties which are now, happily, all overcome, and they are taking out good gravel in abundance. A water-blast supplies an abundance of air for ventilation.

#### INYO COUNTY.

The Los Angeles *News*, July 15, learns from a gentleman just from the mines, that Mehan's mill will start up during the next week. The Parson's mill has been idle, but will also commence operations on Monday next. A brisk time from this out is anticipated by all the residents of the mining districts.

**BULLION.**—The same paper says 460 bars silver lead bullion, weighing 38,775 pounds, were received at the depot yesterday from the Union Works, Cerro Gordo district.

The *Independent* furnishes the annexed items:—A new ten-stamp mill is giving up in the Hot Springs district. A Stedefeldt furnace is to be added, the whole making a reduction works of the most complete character.

Beadry's furnace was again started up week ago last Wednesday, and in the first twenty-four hours run out one hundred and fourteen bars of bullion.

On the 28th ultimo there were shipped by Wells, Fargo & Co., three bars of bullion from the Kearsarge, weighing, 2,556 ounces.

#### NEVADA COUNTY.

**THE MINING SITUATION.**—The Grass Valley *Union* gives a lengthy editorial under the above head, from which it appears that the mining business in that vicinity is in as flourishing a condition, taking all things into consideration, as at any time in the past. Prospecting is very active in quartz and in gravel mining, and prospectors are succeeding well. The custom mills are kept running most of the time, and the Superintendents of these mills inform us that the rock put through is unusually rich. We have only space this morning

for the mention of a limited number of mines.

**LARGE YIELD OF GOLD.**—The same paper says that a few days since the Seven-Thirty mine, located about 4 miles southwest of Grass Valley, had 21 loads of quartz crushed, which yielded \$4,410, or \$210 for each load. The Seven-Thirty is on the same ledge as the Bowers. The Tornado is also in the same vicinity.

**ALTA Co. No. 3.**—An 8-stamp crushing mill to be run by steam, and to be used to crush cement, has been hauled to the ground of the Alta Company No. 3. In about three weeks the mill will be running. The mine looks well.

**THE OLD SOGGS MINE**, at Nevada, according to the *Transcript*, is again being worked and will no doubt soon be made a paying institution. It formerly paid well; but latterly, under had management ceased to pay and work was discontinued. It is expected that work will be resumed on other mines, on which work has been suspended.

**MINING SALE.**—Sargent & Jacobs have purchased the Nebraska Co.'s ditch and diggings above Quaker Hill.

**RICH STRIKE.**—Orr and Corns have struck an exceedingly rich ledge near South Fork, Eureka township. The ledge is six inches wide and our informant says nearly one-third gold.

#### PLACER COUNTY.

**OPHIR DISTRICT.**—The recent rich developments of the several mines in this district have caused considerable excitement among capitalists and mining men, and further developments are still being made.

Johnson & Co. opened a rich ledge near the St. Patrick, last week. These three men, says the *Herald*, had sunk a shaft some fourteen feet when they opened on rock that pays some six or seven dollars to the pound; or, if it holds out, about \$12,000 to the ton. At last accounts, two of the men were quarrying the rock and packing it to the cabin where the other was pounding out the gold by the use of a common hand mortar. This discovery has created additional excitement in this rich quartz district.

**ANOTHER RICH DEVELOPMENT.**—W. H. Puffer has recently developed a quartz ledge on the south side of Dutch ravine, about three-quarters of a mile below Newcastle, which, as far as opened in compares favorably with the richest mines yet opened in this vicinity or anywhere in the State. They made a crushing last week which resulted in \$60 per ton for 28 tons of unselected rock. They think the rock they are now taking out from five inch ledge in the bottom of the shaft will pay \$150 to the ton.

#### SIERRA COUNTY.

**STARTED UP.**—Downieville *Age*, July 12th: The company owning the quartz ledge near the watering trough on Good-year's hill, have commenced work in earnest; they are putting on a force of men, and will put up a 20-stamp mill forthwith. The specimens from this mine will compare favorably with any mine in the county.

### Nevada.

#### HUMBOLDT.

**BULLION SHIPMENT.**—The amount of bullion shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$8,000.

The Grant mine has been purchased by Mark F. Ashley, who intends putting on a force of miners at an early day.

The English copper mine, near Galena, is yielding satisfactorily, with a promise of becoming a very valuable property; 20 or 30 miners are employed.

#### WASHOE.

**THE CHOLLAR POTOSI.**—It appears from the last annual report of this mine that it has yielded a total to this time of \$10,057,573, of which about one-half has been paid for working the ores.

**MINING YIELD.**—During the last week 624 tons of ore was taken from the Hale & Norcross mine and 1,135 tons from the Savage mine, the latter assaying \$29.08 per ton. The June receipts of the Chollar-Potosi aggregate \$181,500; Kentucky, \$21,700; Succor, \$11,900.

The Lady Bryan mill is in constant operation, crushing on the average 28 tons of ore per day. The ore breasts on the 80-foot level are of late much improved in appearance, and the ore is now paying better than ever before.

**THE SAVAGE.**—The tunnel running southward from the bottom shaft through to the Hale & Norcross, or that portion of it which was blocked up by the debris forced into it at the time of striking the body of water in the drift east, has been cleaned out and thoroughly repaired.

**SEGREGATED BELCHER.**—This company

will probably sink a new shaft to the eastward of their present main shaft. Either this must be done, or the one through which they are now working must be put down some 500 feet deeper.

**SHUT DOWN.**—*Enterprise*, July 16th: The Imperial Mining Company shut down their works last night. When they will be started up again no one knows. The depth of their main shaft is 1,300 feet. From this they have run drifts toward all points of the compass, raised shafts and sunk winzes from cross drifts and main drifts, completely honey-combing their ground without finding paying ore.

#### WHITE PINE.

The International is closed for repairs. The shipments of bullion since the mill got fairly under way has averaged \$40,000 per week. Over 1,000 tons of ore are now at the mill awaiting reduction.

The Stanford mill which had been closed for repairs, was started again on the 6th inst., with over 1,200 tons of ore on hand, and ore is still going to the mill.

The Gov. Blaisdell, the Beecher Consolidated and Ward Beecher, show marked signs of improvement.

**BEERHARDT.**—The *News* says the new drift in prospect shaft shows strong indications of soon striking ore. Now hoisting ore of same grade as mentioned in our last—about \$50 per ton. Shipping by tramway daily to International mill about 30 tons. Working 30 men. The tramway is improving regularly in its working.

**SOUTH AURORA.**—Shipping ore to the Stanford mill by team, but will soon commence by tramway. Working 90 men.

### Arizona.

**THE GREAT VULTURE GOLD MINE** which is claimed to be the richest ever discovered, is located 12 miles from Wickenburg at which place there is no water at the mine; all the rock has to be hauled. The mine was discovered about two years ago, and at once attracted universal attention by its extraordinary richness. A company was formed in New York and the mine opened. They had only got fairly started, however, before they were attacked by the Indians, the workmen at the mine killed or driven away and everything about the place burned. There was too much gold in the lead to abandon it, and a new force was put to work. Since then, although several skirmishes have occurred at the mine and in its vicinity, the work has steadily progressed. The hauling of the rock from the mine to the mill at Wickenburg is a work of considerable peril, and notwithstanding the precaution of sending large trains together and usually accompanied by a guard of soldiers.

**ARIZONA NEWS.**—The *Miner* of the 1st says: Many new ledges of silver and gold rock have been found in Wallapai District, Mohave county.

The latest news from Bradshaw is better than any previously received. Mr. Walsh, foreman of the Original Tiger, writes Mr. French that the ledge was looking splendid. Other persons say the other mines were developing finely.

### British Columbia.

**PEACE RIVER MINES.**—We take the following items from a correspondence in the *British Colonist*, in relation to the new mines, dated at Skeena Forks, June 5, 1871.

With regard to the mining news it is all that could be desired. A canoe arrived last night bringing the intelligence that the miners who passed up early this spring have struck several creeks and gulches that will pay well.

Diggings have been struck on Germansen Creek, eight miles higher up than the Discovery claim, that will pay six ounces a day to the hand.

A new creek lying west of Germansen has been discovered that will pay equally as well.

There is now no anxiety felt about the richness of the diggings. The whole Peace River country is full of gold, the climate is mild and healthful, and communication with the principal points of supply not much longer than those of Cariboo. Over 700 men have gone up.

**CARIBOO.**—A telegraph line has been opened to the Cariboo mines. The machinery for the Cariboo Mining Co. was to have been on the ground by the 10th of July, and the mill is expected to be in operation during the month of August. This mine is thought to be of extraordinary value—millions is the talk. The ground of this company is situated in the "Meadows," the lower part of Williams Creek, where in no place a shaft has been sunk without getting good prospects. The Colonial Government granted the company several miles of the creek, and with steam machinery it is believed they have the

chance of most brilliant returns.

### Colorado.

**GEORGETOWN.**—We gather the following items from the *Georgetown Miner*, July 13th:

**BULLION.**—The shipments of bullion for the week from the International, Argentine \$2,221.80. The bullion report of the Stewart Silver Reducing Co. from starting of mill, 1870, to July, '71—nine months, has been \$180,785—taken from 1,390 tons of ore.

The Main lode is being worked by Kennedy & Reynolds. The developments are extraordinary—the first-class ore yielding 719 ounces, and the second-class 272½ ounces to the ton.

A lot of ore taken from the Dives lode, treated at the Stewart Silver Reducing Works, yielded \$365 coin, per ton.

A new and rich discovery, called the 4th of July lode, has been made on McClellan mountain, by Tom C. Johns and W. J. Riley; which yields over 1,000 ounces per ton. The vein has been traced 2,000 feet. The discovery of this lode has created a sensation among prospectors.

**ABOVE THE TIMBER BELT.**—The International Reduction Works, and the Belmont and International mines, on McClellan mountain, Argentine District, at an altitude of 12,500 ft. have been worked all winter. Though the International is worked at a depth of 150 feet, the frost line has not yet been passed. The men are working in frozen earth and rock. We shall notice the mode of working this extraordinary mine more at length hereafter. The ore from this mine averages \$100 per ton.

The Belmont Lode is still higher up the mountain than the International, and is worked by ten men, the ore averaging, by mill treatment, \$130 per ton.

**THE TERRIBLE MINE.**—The report for the last six months is as follows:—1st class ore, 56 tons, at \$550 per ton; 2d class, 235 tons, at \$110; 3d class, 328 tons, at \$50. Gross aggregate \$73,000; expenses, \$46,000; net profits, \$27,000—a good showing. The mine has just been placed in good working order; is now on its second year of work and improving.

**SUMMIT COUNTY.**—Mining operations in this county are quite active. The St. Lawrence Company are taking measures to erect an Arcy Furnace. The Chataque and Walker lodes are being developed.

Great activity prevails at St. Johns. The Boston Silver Mining Association are rushing things. This company have a large quantity of ore out and a mine capable of yielding a large amount of ore every day.

Placer mining in Summit this year is very remunerative. We hear of one company that cleaned up twenty-seven pounds of gold from one run.

**CENTRAL CITY.**—We gather from the *Central City Register* as follows: The receipts of bullion at the Branch mint for the month of June, were in excess of any previous month in the year. The value of bullion received was \$132,179.

**BOULDER COUNTY.**—The Galena lodes in the Pewink District, now being worked are numerous, and average \$50 per ton in silver. Transportation and machinery are wanted.

**WARD DISTRICT.**—The Boston lode is extensively worked and paying well. Prof. Richardson is erecting reduction works in this district. Ed. Learned and associates have expended half a million on the Ni-Wot mill and mine. This mine is now in process of development. The surface rock yielded an average of 30 ozs. of gold per cord. About \$147,000 were taken out at a cost of some \$10,000.

**AN EXTRAORDINARY SILVER PLACER.**—A correspondent of the *Denver News*, gives a detailed description of a discovery of some rich silver placer diggings near the mountain village of Georgetown. The discoverers took out from \$1,000 to \$1,500 in three weeks. There is a great rush to the new locality, which is now known as "Silver Patch Diggings." Large holders of rich mineral are sometimes found weighing from 50 to (the largest) 432 pounds, and assaying from \$1,500 to \$2,000 ozs. per ton. Three valuable lodes have already been found.

**CARIBOU.**—The *Caribou Post* says that the excitement of the hour is over new discoveries on the north side of Caribou Hill. Not a day passes but that some fortunate one makes a strike, which he believes his fortune.

The Caribou Co. are raising ore from a splendid deposit of mineral; black sulphurets are brought up from a depth of 100 feet in chunks 2 feet thick. Much of the ore is valued at \$500 per ton.

The Hidden Treasure, recorded about



one year ago, is turning out large quantities of high grade ore. The Von Moltke, near by, is 3 feet thick at a depth of 20. They have now come upon a body of ore estimated at \$300 per ton.

**Box Miners.**—Three boys, from 12 to 13 years of age are sinking a shaft, and were daily expecting to "strike it rich." We hope they may.

### Idaho.

**FROM CARIBOO, IDAHO.**—A correspondent of the Corinne Journal gives the following items in regard to these new mines: "Jim Toland has got his claim running, and in one day and a half cleaned up three ounces for two men's labor. Monday, Jeff Thompson offered his claim for a horse; to day it cannot be bought for \$2,000; he has panned out fifty cents to the pan. Kinson & Low's diggings pay from \$3 to \$16 per day to the man. Stone & Fisher's claims are paying well. Keenan has a company of men making a ditch in Iowa gulch to take the water to ground that pays 15 cents to the pan. Horace Double and Jeff Waford are making \$10 per day to the man, over in "Bilk."

**IMPORTANT ENTERPRISE.**—A Bed-rock Tunnel Co. has been organized at Boise, to work the Moore, Elk, Grimes and Granite creeks. The capital stock is \$500,000. The *Statesman* says the work will be undertaken in good faith, and that the creeks mentioned are known to be rich.

### Montana.

**HENDERSON GULCH.**—*Helena Gazette*, July 10th: Though many changes have taken place, the fact is evident that this camp is prosperous and continues to yield as well as last year.

**BEAR GULCH.**—Foley & Co are busy, and their ground pans out about \$100 per week to the hand. The mines in Phelan Gulch are making big money. Talbot & Co.'s sluices were cleaned up by thieves a few nights ago—about \$500 gone.

**ELK CREEK.**—The miners here are in better condition than ever before. Mid-danah & Jones are taking out \$15 to \$20 to the hand. Kinds & Co., and Crogan & Co. are averaging from \$800 to \$1,000 per week, with two years work ahead. Dooley & Brogan have bought Jas. Dugans flume for \$3,500. This Co. have been offered \$24,000 for their ground in this camp.

**LINCOLN GULCH.**—Eleven companies are at work here; five whims are running; population of the camp 100—none idle.

Work in McClellan and Jefferson gulches is going on as usual. The Pull boys in the latter have been offered \$5,000 for their claims; Harris & Bros. are taking out \$50 per day to the hand. The Lone Man gulch has 80 tons of rock in sight.

**WEST SIDE ITEMS.**—*Helena Herald*, July 13th: Woodcock & Co.'s sluice boxes were robbed in Bear gulch last week, of about \$200 worth of dust. One company working at the head of Deep, is making \$100 per day to the man. Bilk gulch is paying well—much better than last year.

Water in Gold creek is getting low, and falling faster than ever before. Several pipes on Brattan bar have suspended for the season, and others will have to be stopped in a few days. Car & Co., of Boyle's gulch, on the Boulder, are making \$20 per day to the hand. Devine & Co. are rigging a wheel, and will shortly attempt to reach bed-rock in the main boulder. It is believed that if bed-rock can be reached it will be found rich.

**DR. HOPKINS** is running the Butterfield mill, and crushing ore from the Dakotah. Mr. B. P. Hopkins is running his mill for quartz from the Mandham lode, and the two furnaces at Argenta are kept in operation. All are reported doing well.

**FLINT CREEK.**—*Deer Lodge Independent*, June 30th: Bell & Co. have just completed the erection of a small water mill on the upper part of Flint creek, for testing ledges. A firm are engaged at Phillipsburg in taking out quartz, but the furnace and Stuart mill are idle, and will most likely so remain for the next two months.

**THE CABLE PLACERS.**—Same paper, July 8th: During four days' work in these mines the average was \$100 in gold and six tons of quartz rich in gold. Water coming in too rapidly work was suspended and the locality will be flumed.

**PILGRIM BAR.**—The following clean-ups are reported: Roe & Bell, \$6,400. Timber lake, Hogan & Co., \$700; Steele & Irvine, \$900; Brelsford & Co., \$1080; Beery & Holcomb, \$800.

**HIGHLAND.**—Away up on the very summit of the Rocky Mountains, is turning out better than ever before. The Only Chance company has just cleaned up 408 ounces of bullion, valued at about \$8,250. The Nevins company is doing better than ever, is working first-class ore, and the mine looks

remarkably well Park & Dickey, on Moose Creek, are making money fast. Trainer & Canovan have struck it rich in the bed-rock flume. They get prospects from 75 cents to \$3 per pan, and will shortly have a very large clean-up.

### Oregon.

**THE SANTIAM MINES.**—A correspondent of the *Willamette Farmer*, July 8th, has lately visited these mines. Quartzville, once the scene of busy mining operations, is now rapidly falling into decay. The quartz mill has been broken up, and that which was movable sold and taken away.

The Galena lead, some seven miles southeast, is being worked, and gives evidence of much value. It contains a large amount of silver, and systematic operations are being made in its development. When first opened it was only 5 inches thick; it is now 13 inches thick, and is known as the Cox lead.

**LEWIS RIVER GOLD MINES.**—The Kalama Beacon, July 11th, says: The town is yet agog with rumors of "a big thing" being struck somewhere up the river toward St. Helen's. The story goes, that Skellenger and a party were on that river hunting land claims, and happening to saunter upon a bar that looked auriferous, they commenced to prospect, and soon found a "pocket" that yielded an ounce; and subsequently found another spot where they washed an ounce from a dozen pans.

### Utah.

**BULLION.**—*Salt Lake Tribune*, July 11th: A large amount of bullion presents itself in front of Walker Bro's. from their mines in Little Cottonwood. Wood & Co. are receiving from 13 to 25 tons of bullion per day for shipment East. Wells, Fargo & Co. shipped to New York on Sunday last bullion to the value of \$7,995 from the Meadow Valley Works, Pioche. Large quantities of bullion are hourly arriving from the mines, while machinery and merchandise is being shipped to them by hundreds of teams.

**LARGE SALE OF MINING INTERESTS.**—Messrs. Seaman & Smalley have disposed of one-half of their mining interests in this Territory to Warren & Kingsbury, late of Illinois, for the sum of \$153,500. The property, which is very valuable, seems to have been sold at low figures, but it brings to the aid of the operators a couple of business men of great experience and enterprise, while it insures the success of the new company. Col. Warren was one of the pioneers of Colorado.

**NEW MINES.**—*Corinne Reporter*, July 15th: The hills about Bear lake are being prospected with very promising results. A ton of rock has been taken to Corinne to be tested.

**OPHIR CITY, July 9th: A large cave was discovered on the 30 inst., on the extension of the Sunnyside mine, by two miners who fell through into it from the bottom of a shaft in which they were working.**

**LION HILL.**—A careful estimate places the amount of ore now lying on the various dumps of mines on Lion Hill alone, at 6,000 tons, awaiting the completion of the stamp mills there. The average value of this aggregate amount is not less than \$150 per ton. The Sunnyside mine, lately and rapidly developed, is considered not only the best mine of that hill, but of the entire district. Its dump now contains twelve tons of \$1,000 ore, four tons of \$1,500 ore, and 100 tons of \$150 ore. A large number of excellent mines are now idle, waiting for the completion of reduction works.

**BINGHAM CANON.**—A correspondent of the *Nevada Transcript* writes as follows from this locality: The cost of living here is the same as in California, taking everything into consideration. We have no coin, it is all greenbacks. The mines are thought to be inexhaustible, but the same thing is lacking here that is in most mining camps, and that is capital to develop them. There is one advantage here, which is this: A poor man may strike a good lead near the surface, take out his ore, sack it, and sell it at his dump for what it is worth. Some are availing themselves of this opportunity. We have here two smelting furnaces. At present there is but very little ore taken out, compared to what there should be. The following is an assayed value of ore from several of the mines here: Buel & Co., \$40 per ton, on an average; West Jordan \$80 to \$250; Watson's \$30 to \$375; Blue Jacket, a copper mine, from 40 to 80 per cent. Junction, \$30; No You Don't, \$60. These mines are not any of them down over 125 feet, most of them from 20 to 60. We have assays here that go up into the thousands, but that is from selected ore and scarce at that.

### Mining Stock Market.

[San Francisco Stock and Exchange Board.]

THURSDAY EVE., JULY 20, 1871.

The principal feature in the Stock Market this week has been the rise in Hale & Norcross. This sold from \$72 to \$85 from Thursday to Monday and then rose to \$170, falling immediately to \$122½, and selling to-day at \$92 to \$82.

The following table gives last Thursday quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week.

July 13 Highest.	Lowest.	July 20. Adv. Dec.
Alpha.....	212	171
Belcher.....	212	171
Chollar-Potosi.....	48	46
Crown Point.....	325	304
Eureka Cons.....	14	14
Golden Chariot.....	42	42
Gould & Curry.....	120	102
Hale & Norcross.....	170	112
Ida Elmore.....	8	8
Imperial.....	36	37
Kentuck.....	120	116
Leadville Valley.....	12	19
Ophir.....	8	8
Orig. Mid. Treas.....	8	8
Overman.....	10	8
Savage.....	46	40
Yellow Jacket.....	67	64

Alpha Cons.....	Ida Elmore.....	Imperial.....	Leadville Valley.....	Ophir.....	Orig. Mid. Treas.....	Savage.....	Yellow Jacket.....
220	220	118	19	8	8	42	67
325	325	304	19	8	8	42	67
14	14	14	19	8	8	42	67
42	42	42	19	8	8	42	67
120	120	116	19	8	8	42	67
8	8	8	19	8	8	42	67
36	36	37	19	8	8	42	67
120	120	116	19	8	8	42	67
12	12	19	19	8	8	42	67
8	8	8	19	8	8	42	67
10	10	8	19	8	8	42	67
46	46	40	19	8	8	42	67
67	67	64	19	8	8	42	67

### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the *SOUTHERN PRESS* and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DAY	DATE OF ASSESSMENT	DELINQUENCY	DATE OF SALE
Altura O. M. Co., Nev. Co., May 28, 25c.	June 25	July 17	
Buckeye, Lyon Co., Nev., July 19, 51c.	Aug. 25	Sept. 18	
Dancy, Lyon Co., Nev., June 15, \$2.50.	July 18	Aug. 5	
Eagle C. M. Co., Cal., June 14, \$20.	Aug. 9	Aug. 14	
Hale & Norcross, Va. City, June 29, \$10.	Aug. 1	Aug. 19	
Highland S. M. Co., Nev., July 13, 10c.	Aug. 1	Sept. 11	
Mahogany, Owyhee Co., I. T., Jan. 22, \$2.	Aug. 10	Aug. 28	
Marble Falls, Nev. Co., Nev., July 12, 50c.	Aug. 19	Sept. 15	
Meadow Valley, Nev. Co., Nev., July 12, 20c.	Aug. 12	Aug. 15	
Meadow Valley, Nev. Co., Nev., July 5, \$1.	Aug. 14	Sept. 11	
Mountain City, M. Co., June 8, 25c.	July 18	Aug. 8	
Nevada Butte, Battle Mt., Nev. Co., Jan. 15, \$1.	Aug. 21	Sept. 16	
Noonday, White Pine, July 13, 20c.	Aug. 21	Sept. 18	
Ophir, Placer Co., Cal., May 30, 60c.	June 30	July 17	
Ophir, Va. City, July 12, \$5.	Aug. 16	Sept. 8	
O. H. Treasure, July 6, \$2.	Aug. 9	Sept. 2	
Pinto, Nev. Co., Nev., July 12, 12c.	Aug. 9	Sept. 2	
Sierra Iron Co., May 17, 60c.	June 25	July 20	
Sumner, Kern Co., May 14, \$5.	Aug. 15	Aug. 30	
Taylor, El Dorado Co., June 27, 10c.	July 12	Aug. 4	
Taylor M. & M. Co., Cal., July 11, 10c.	July 12	Aug. 4	

### MEETINGS TO BE HELD.

Alegany Consolidated.....	Annual Meeting, July 31*
California.....	Annual Meeting, Aug. 1
Caledonia.....	Annual Meeting, Aug. 2
Camp Floyd.....	Annual Meeting, July 31
Empire.....	Annual Meeting, July 24
Keastport Coos Bay Coal.....	Adjourned Meeting, Aug. 18
Ida Elmore.....	Annual Meeting, Aug. 7
Mohawk & Montreal.....	Adjourned Meeting, July 25

### LATEST DIVIDENDS—(Within Three Months).

Chollar-Potosi, \$2.	Payable July 11
Chollar-Potosi, \$2.	Payable May 20
Crown Point, \$5.	Payable June 6
Eureka, div., \$2.	Payable May 6
Eureka (Cal.), \$1.	Payable July 7
Eureka Cons., 75c.	Payable April 20
Golden Chariot, div., \$7	Payable March 10
Hale & Norcross, div., \$5.	Payable April 10
Meadow Valley, div., \$5.	Payable June 6
Norcross, div., \$1 per cent.	Payable May 10
North Star, \$3.	Payable May 10
Overman.....	Annual Meeting, July 13
Redington, 1 per cent.	Payable June 6
Yellow Jacket, \$2 50.	Payable July 10
Yule Gravel, 50 cts.	Payable July 5

\*Advertised in this journal.

### Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.	
City Tanned Leather, \$10.	25@30
Santa Cruz Leather, \$10.	25@30
Country Leather, \$10.	25@30
The French market remains the same. California skins are higher and in demand.	
Jodot, 11 to 12 Kil, per doz.	\$62 00@
Jodot, second choice, 11 to 12 Kil, per doz.	\$52 00@ 95 00
Lemino, 16 to 18 Kil, per doz.	\$38 00@ 63 00
Lemino, 12 to 13 Kil, per doz.	\$38 00@ 70 00
Cornellian, 16 Kil, per doz.	\$72 00@
Cornellian, 12 to 14 Kil, per doz.	\$65 00@ 70 00
Opera calf, per doz.	\$1 00@
Mercator calf, 16 Kil, per doz.	\$5 00@
Common French calf skins, per doz.	\$5 00@ 75 00
French Kips, per doz.	\$6 00@ 75 00
Eastern Hump Stuffed Calf, per doz.	\$8 00@ 12 00
Eastern Hump Stuffed Calf, per doz.	\$1 10@ 12 00
Eastern Calf for Backs, per doz.	\$8 00@ 12 00
French Road, for Top and Colors, per doz.	\$8 00@ 12 00
Sheep Roams for Linings, per doz.	\$5 00@ 10 00
Best Jodot calf Boot Legs, per pair.	\$5 00@ 5 50
Good French Calf Boot Legs, per pair.	\$4 50@ 5 00
French Calf Boot Legs, per pair.	\$4 00@
Harness Leather, per doz.	\$8 00@ 12 00
Trance or Brink, per doz.	\$3 40@ 7 00
Skirting Leather, per doz.	\$2 00@ 50 00
Wet Leather, per doz.	\$2 00@ 50 00
Buff Leather, per doz.	\$1 80@ 24 00
Wax Side Leather, per foot.	\$1 80@ 24 00

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

### San Francisco Retail Market Rates.

FRIDAY, July 21, 1871.

MISCELLANEOUS.	
Batter, Cal fr. 25	45
Picked, Cal fr. 25	45
Oregon, Cal fr. 25	45
Money, Cal fr. 25	45
Cheese, Cal fr. 25	45
Fats, per doz. 25	45
Lard, Cal fr. 25	45
Sugar, cr. 6 1/2	10
Brown, do, 6 1/2	10
Refined, do, 6 1/2	10
Sugar, Map. B. 25	40
Plums, dried, 15	25
Peaches, dried, 15	25

PRODUCE, ETC.	
Coffin, dry, 6 00	12 1/2
Flour, ex. 3 bbl. 7 00	47 1/2
Superfine, do. 5 50	46 00
Corn Meal, 100 lb. 3 00	43 25
Wheat, 100 lb. 2 25	42 50
Oats, 100 lb. 1 50	42 10

FRUITS, VEGETABLES, ETC.	
Pine Apples, 4-5 00	69 00
Bananas, Cal fr. 25	45
Cal. Walnuts, do. 25	45
Cranberries, O. 75	45
Cranberries, O. 75	45
Apples, Early, 10 00	21 25
Red Astor, 10 00	21 25
Red June, 10 00	21 25
Pears, table, 10 00	21 25
Plums, Cherry, 10 00	21 25
June, 10 00	21 25
Apricots, Royal, 10 00	21 25
Mockap, 10 00	21 25
Vitico, 10 00	21 25
Chorries, 10 00	21 25
Currents, 10 00	21 25
Goussberries, 10 00	21 25
Raspberries, 10 00	21 25
Strawberries, 10 00	21 25
Blackberries, 10 00	21 25
Oranges, 10 00	21 25
Lemons, 10 00	21 25
Limes, 10 00	21 25
Figs, dried, 10 00	21 25
Salmon, 10 00	21 25
Apricots, 10 00	21 25
Artichokes, 10 00	21 25
Brussels sprouts, 10 00	21 25
Beets, 10 00	21 25
Potatoes, 10 00	21 25
Potatoes, sweet, 10 00	21 25
Broccoli, 10 00	21 25
Cauliflower, 10 00	21 25

POULTRY, GAME, MEATS, ETC.	
Chickens, apiece 50	75
Turkeys, Cal fr. 25	45
Ducks, wild, 25	45
Tame, do. 1 50	45
Geese, wild, each 25	45
Geese, pair, 2 50	45
Hen, each 75	85
Saupe, 10 00	21 25
English, do. 10 00	21 25
Vandier, 10 00	21 25
Quails, 10 00	21 25
Pigeons, dom. do. 10 00	21 25
Wild, do. 10 00	21 25
Hares, 10 00	21 25
Rabbits, tame, 50	100
Wild, do. 10 00	21 25
Beef, 10 00	21 25
Beef, 10 00	21 25
Sirloin and rib 10 00	21 25
Corned, 10 00	21 25
Smoked, 10 00	21 25
Pork, rib, etc. 10 00	21 25
Chops, do. 10 00	21 25
Veal, 10 00	21 25
Mutton chops, 10 00	21 25
Leg, 10 00	21 25
Lamb, 10 00	21 25
Tongues, beef, 10 00	21 25
Tongues, pig, 10 00	21 25

New York Metal Market.	
Fig. Scotch, No. 1 (cash), per ton	\$33 00 @ 35 00
Fig. American, No. 1 (cash)	25 00 @ 36 00
Fig. American, No. 2	25 00 @ 36 00
Subsidiary ordinary sizes	105 00 @ 120 00
Common	72 50 @ 77 50
Refined	77 50 @ 85 00
Sheet	95 00 @ 100 00
Horse-shoe	95 00 @ 100 00
Hoop	100 00 @ 115 00
Scroll	100 00 @ 120 00
Trance or Brink	100 00 @ 120 00
Spring	75 00 @ 80 00
Tire	75 00 @ 80 00

\* Per lb. † Per dozen. ‡ Per gallon.

### New York Metal Market.

[CORRECTED WEEKLY FROM AN AMERICAN ARTIAN.]

NEW YORK CITY, Saturday, July 8, 1871.

### IRON.

Fig. Scotch, No. 1 (cash), per ton	\$33 00 @ 35 00
Fig. American, No. 1 (cash)	25 00 @ 36 00
Fig. American, No. 2	25 00 @



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING JULY 4TH.

PREPARING SEAL SKIN.—Louis Falkenau, San Francisco.

TILTING CHAIR.—Chas. R. Peters and William P. Taylor, San Francisco.

ROLLER SKATE.—Georgs Vincent, Stockton, Cal., assignor of two-thirds his right to Wm. H. Van Vlear and Charles D. Ladd, same place.

ROTARY SOD CUTTER.—Josiah Pool, Rio Vista, Cal.

TOILET PASTE.—Julis Desmarquess Young, San Francisco.

### Notices of Recent Patents.

IMPROVED PUNCH.—D.A. Faulkner, Centerville, Alameda county, Cal. This invention relates to improvements in stationary punches, such as are used for punching leather, metal and other substances; and it consists in the employment of an adjustable circular plate or disc which is provided with different sized holes, any of which can be readily brought under the punch. It also consists in an improved manner of attaching and operating this punch, so that it can be readily removed and replaced with a different size when necessary.

IMPROVED WAGON.—C. Elliott, Woodland, Cal. This invention applies to huggies, carriages and light wagons. It consists in a peculiar manner of mounting the bed or body upon the carriage frames, so as to secure an easy and undulating motion, and at the same time a strong and substantial construction, while the expenses of manufacture are kept within reasonable limits. The device recommends itself to the attention of carriage-builders and others.

AN IMPROVED IRONING AND STRETCHING BOARD.—J. W. Davis, Reno, Nevada. The object of this invention is to provide an ordinary ironing board with a stretching device, by means of which clothes and other fabrics, which have been shrunk by washing, can be stretched to their original length and set by ironing so that they will retain their length. The device is simple and of easy use, and is said to answer its purposes very well.

ROTARY ROASTING FURNACE.—F. Kessler, S. F. This is a combination of a stationary and a revolving hearth, one placed above the other, over which the heat from the furnace passes. The revolving hearth is placed below the stationary one, and first receives the heat from the grate. From the chamber in which this hearth revolves, the heat is led through a convenient flue to the upper chamber, which is provided with the stationary hearth. From this chamber the heat escapes to the open air. The ore is first fed from a hopper upon the stationary hearth of the upper chamber, where it is subjected to the action of the heat, being stirred meanwhile by a series of plows which are moved around over the hearth. After being sufficiently subjected to the action of the heat in this chamber, it is passed through proper gates to the revolving hearth of the lower chamber, by which it is carried slowly around beneath a horizontal shaft, which is provided with peculiarly shaped beaters and lifters which consecutively mat down the ore and lift it into the air, so that, by dropping, it is loosened up and exposed equally to the heat, thus also permitting the volatile gases to escape. After being sufficiently subjected to this process, it can be removed from the hearth by suitable traps or gates.

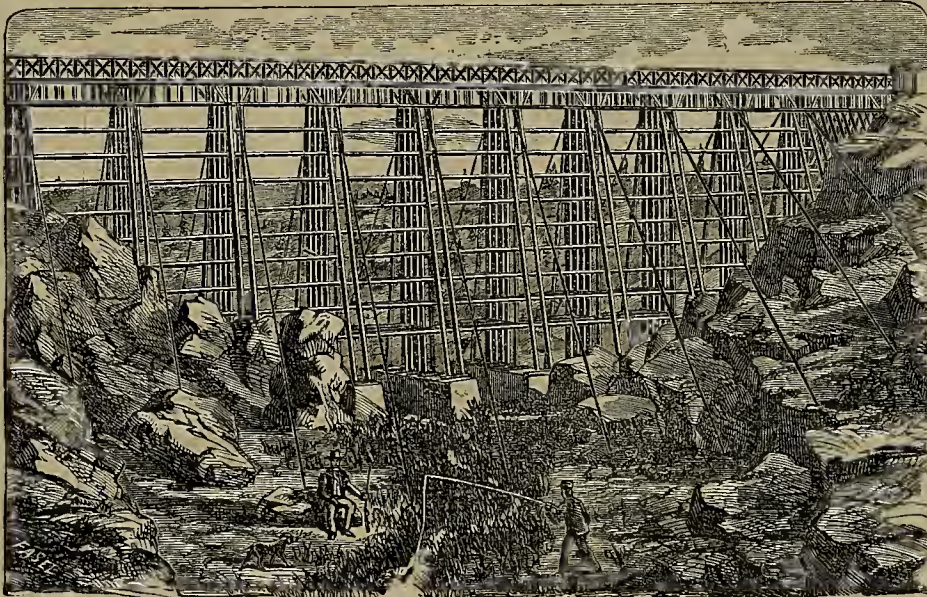
NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

THE St. Louis Iron Co. contemplate erecting the largest blast furnace in the U.S.

### Editorial Notes Eastward.—11.

#### Through Wyoming.

Now we come to the region of snow fences and snow sheds, for we are creeping slowly to high elevations. We pass into Wyoming Territory, and at Evanston see some of the coal mines, which form such an important part of this wealth of this section. We pass such mines also at Point of Rocks, Hallville, Black Buttes,



DALE CREEK BRIDGE, UNION PACIFIC RAILROAD.

Carbon and Rock Creek, but daylight permits us to see but a few of these points. Coal is not the only mineral, however, along the railroad, but copper, iron and gold are also reported at several places.

We breakfast next morning at Laramie,

and see that the farmers are taking advantage of the opportunities offered by this railroad and are settling up the country. We come to the great Valley of the Platte, of huge extent, rich and beautiful. We sail over the plains, which at sunset are lighted up with rich hues and present a scene of the deepest space. The morning sun shows us a like view, and we rush ever forward into the day, until we finally reach, in the middle of the afternoon, the

terminus of this road, and will rest awhile at Omaha.

### What a N. Y. Library Association Does.

Fifty years ago, a number of gentlemen

Elizabeth, Jersey City and Paterson, New Jersey. In the city, the library delivers books at the residences of members, if desired. It has just introduced the practice (being the first in the United States to do so) of circulating monthly and quarterly magazines and reviews as it circulates books. A weekly charge of five cents is made for their use. It has lately started a bindery of its own in its building, this being far more satisfactory and probably more economical than the old plan of giving out the work. The project has been mooted of having the library open on Sundays, but the feeling against it, on the part of those who have already secured comfortable homes, is so strong that the subject has been dropped for the present. As the library is intended principally for the use of clerks, so many of whom have no proper place of resort on Sunday, and many of whom would be kept from worse places if they had a pleasant place to go to, we hope that the plan may be carried out at no distant day.

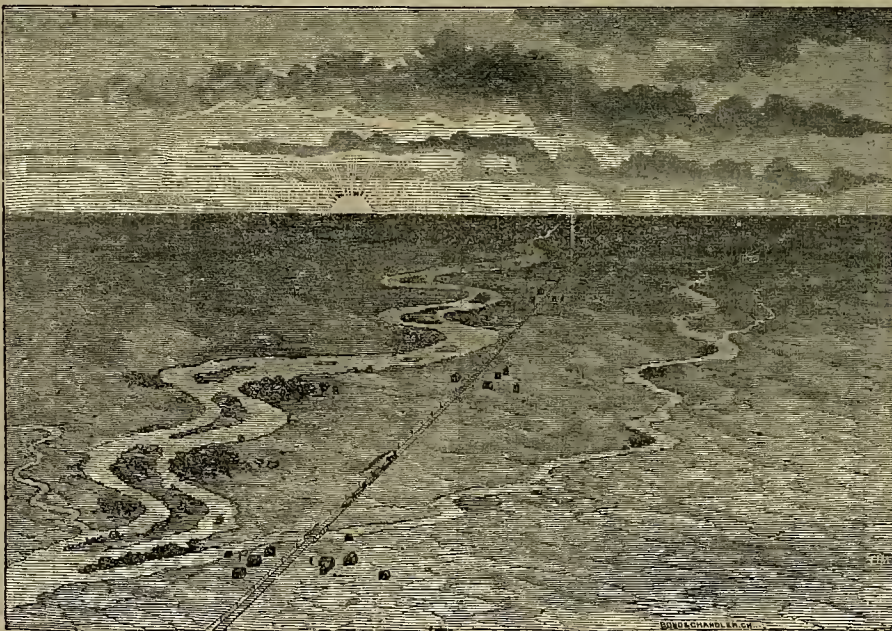
There are, in connection with the institution, classes in French, German, Spanish, English, Phonography, Elocution and Gymnastics. These are self-supporting, but the attendance is growing small, and there is some question as to the advisability of continuing them all. The practice of public lecturing under the auspices of the association was once a

leading feature, but had died away for several years previous. It was successfully revived, however, last winter. The association has four free scholarships,—two in Columbia College and two in the University of New York. By law the President,

Vice-President and Treasurer of the library are *ex officio* trustees of the Institution for the Savings for Merchants' clerks.

These few items, which we have taken from the fiftieth annual report, will serve to show something of the scope and influence of the association. It is a great credit to New York that the institution can be in so flourishing a condition, and that it receives the aid which it does from the merchants of the great metropolis. It appears to have received a steady and liberal encouragement from the mercantile community from its start. We hope that the fiftieth annual report of the San Francisco association will be able to give a corresponding state of affairs.

SILK.—The Grass Valley Union of July 12th, says: The silkworm business this year, in this county, has been remarkably successful. The worms have hatched, attained full size and have spun without



SCENE ON THE PLAINS—CROSSING OF LOUP FORK RIVER.

famous for its plains, its healthy position, and from the fact that here the gentler sex have acted on jury duty, Wyoming being the first to make trial of female jurors. Before long we come to one of the most noted structures on the road, Dale Creek Bridge, some 700 feet long and 126 feet high, which is a monument to the skill of the U. P. R. R. engineers. [The accompanying illustrations are from Croft's Transcontinental Guide Book.] Soon we come to Sherman, the highest railroad station in the world, 8,242 feet above the level of the sea.

Now we glide on a downward grade, having surmounted all the difficulties of our path. At noon we are at Cheyenne, where the Denver Pacific branches off to the south.

#### Through Nebraska.

Between three and four o'clock we pass into Nebraska. On its rolling prairies we

founded in New York a Mercantile Library Association. This had in all 204 members during its first year, and acquired 1,000 volumes. Now this same association admits to its halls nearly thirteen thousand members, has on its shelves over one hundred and twenty-seven thousand volumes, and circulates in the course of one year two hundred and sixty-nine thousand publications. Its library is excelled in size by only three libraries in the country, and exceeds in circulation all others. Its annual income amounts to over forty-two thousand dollars, and it expends yearly some eleven thousand dollars in books.

Besides the main library, with its reading rooms, halls, etc., there is a branch library in another part of the city, and also branch offices in Yonkers, N. Y.; in Norwalk and in Stamford, Connecticut; and in

being troubled by any disease whatever. The season has been favorable, and, besides that, those engaged in the business have learned much about the worms. We saw yesterday samples of cocoons from Dimon's Silken Grove ranch, and they are very fine. These cocoons were spun by the French annual worm, and by the Salt Lake worm. The cocoons made by the Salt Lake worm are easily reeled, requiring no wetting or soaking in the process. Dimon informs us that his mulberries are flourishing beyond his expectations. He has not lost a worm this year, has plenty of eggs for next year, and will have food for a largely increased number of worms. Mulier, of Nevada City, has also been successful, as he always is. Nevada county will be well represented as to the silk business at the Mechanics' Institute Fair and the State Fair.



## POPULAR LECTURES.

[Concluding address before the MECHANIC ARTS COLLEGE. By Rev. Horatio Stebbins. Reported expressly for the PRESS.]

### The Theory of Common Schools Established by the State—Some Misconceptions, Social, Secular and Religious, Concerning Them.

You are, said the lecturer in commencing his address, not merely pupils of nonage, but you are citizens on whom the State imposes duties and obligations. Many of you are heads of families, and the education of your children becomes an object of increasing importance as they come forward to the responsible conditions of life. It may therefore be deemed not inappropriate to speak to you to-night concerning the principle on which our school system rests; for a clear conception of this places the citizen firmly on his feet.

#### The Principle on Which the State Supports Public Schools.

The Public School is founded on the well-established principle that Government may assume and exercise powers for the public good. This principle is identical with the very idea of civilized society, and is involved in almost all the benefits of social order. In the regulation of commerce, the coining of money, the building of roads and bridges, paving, lighting and cleaning the streets of a city, improving harbors, building light houses, establishing hospitals and asylums, levying taxes and military service, Government displays its power for the common good. It is not for individual good, but for common good. Government has no right to enforce what is best for the individual in his individual capacity, nor to seek the individual welfare save only indirectly through the common welfare.

Popular ignorance is the deadly foe of freedom. Liberty has gained power and place on earth through the growth of intelligence. Ignorance is fit only for oppression, tyranny and wrong. Freedom lays positive duties which ignorance cannot perform. Therefore ignorance is an injury to the State; it is garbage in the streets of the city, it is an impassable road in the country, an epidemic, a nuisance. By a principle as plain as that by which the Government compels the unhappy victims of contagion to be cut off from society, or sweeps the streets, or builds bridges, it may require that ignorance be removed. It has nothing to do with ignorance as it affects the man himself, but as it affects the common good.

Thus the State, imposing obligations which intelligence alone can discharge, is bound to supply the means of the intelligence, on the same ground that, requiring military service, she is bound to furnish implements of war. Therefore the State establishes schools and offers the advantage to all. The only thing needed to carry out the principle and interest of the State is a provision, already made in some portions of the country and attracting attention everywhere, against neglect and truancy, requiring that all children not provided with the means of education by their parents, shall attend the public schools. This would complete the system.

#### Immense Social Value of Public Schools.

Thousands have no conception of the real foundations of the public school, or of the rights of the State, and feel that education, being free to all, is free to be let alone. And this opinion is not confined to any one class or condition of society. There are those who feel that they are at liberty to allow their children to grow up in ignorance, if they choose. Whereas the theory of a free State is, that ignorance is a perpetual standing menace to the public welfare, a social and political nuisance, a dead obstruction to the peace and dignity of the commonwealth. Omitting altogether the relation ignorance has to crime, outrage and violence, it is incapable of discharging the positive duties which the State enjoins upon its citizens. The immense social value of the public school, when carried forward to realize the principles upon which it is founded, is not easily comprehended, because its results are remote and not exclusively material. But it is no exaggeration to say that the Board of Health cannot so promote the public welfare as the Board of Education. Ignorance is only a more intellectual nomenclature for the most pestiferous conditions of sewage, nuisance and miasma. The reply of thousands of men of the highest educational experience, of different sects and professions, to questions propounded by Horace Mann as to the result of the highest development of the common school system, with the best teachers and the attendance of all children during the years appropriate to pupilage, was, that if the system should be thus developed *not two per cent.* of the rising generation of the people would fail to be good citizens.

#### Public Schools are Not Charities.

There is another fallacy. We sometimes hear the public school system spoken of as a charity, and the man who has no children contributing to educate other people's children. It is no more a charity than is a bridge, or a road, or a street lamp. There is a superficial yet specious statement that runs like this: "A is a man of property without a family; B is a man of family without property. Why should

A pay taxes to educate B's children?" For the same reason that he should pay taxes to light the city. And it is not for B's children in either case, but for the common good. It might just as well be said: "Why should B, who does not keep a carriage, pay taxes to pave a street for A, who does keep a carriage, to drive on?" Taxes are moneys exacted from property chiefly to pay the expenses of social order. The chief expenses of social order are for the protection of the rights of property. Therefore it is just that property, and not persons, should pay the taxes. And it is no more unjust for a man without children to pay taxes for the schools, than it is for a man without a carriage to pay taxes for the streets.

#### Religious Education in Public Schools.

As is most natural and to be expected, a warm discussion, arising chiefly with the Roman Catholic church, is now going on with regard to the religious character of the public schools. Although there is at present a full in the discussion, it is not to be assumed that the questions involved are decided.

The ground of the Catholics is, that all schools ought to have religious education connected with them; that a school of any kind in which religion is not taught, is a godless school. Holding these views (and some other sects hold similar ones), they claim that the moneys raised in the State for public schools ought to be divided among the sects; or, at least, that those who insist on religious education should be allowed their share. This amounts to breaking up the present system and establishing another which may be properly called the sectarian system.

#### Religious Education Does Not Belong to a Public School.

The true correction for this and the proper reply are found in what I believe to be the fact that the public school is not, never should have been, and never should be, a religious institution at all. With the progress of liberty, the State exists independently of the church. Its purpose is to make intelligent citizens, not Christians. This latter is a matter of private, domestic conscience. All religious instruction should be left to the family, the Sunday-school and the church. This is best for religion itself. Nothing produces indifference more surely than the attempt to force religion in mechanical and unnatural methods. And it is unwise and unjust to enforce doctrines on those who object to them. As to calling the school godless because the Bible is not read there, you might as well call your place of business godless because the Bible is not read there.

Religion is a home sentiment, and not of the school. God himself has seemed to make this distinction in the very frame of our being and our earthly lot. All cannot teach their children intellectually, but all can teach them religiously. Religion is not taught by exact methods, but by divine influence, the temper and spirit of a household, a mother's loving care. A boy cannot have his business training in his father's house, nor his religious training in the public school. To turn children out into a public school to be taught religion is heaving them of their birthright and heavenly privilege.

#### Secular System Financially Impossible.

Let us see what this demand means. The State is required to divide its moneys among the religious sects under the specious plea that it tolerates all and cherishes all. I emphasize that: *tolerates all and cherishes all.* But this tolerant condition defeats itself, inasmuch as it diffuses and dissipates the public money and so increases the expense of education, by increasing the number of educational centers, that practically very many would be deprived of their benefit. And who is to determine about the sects? Even within the limits of Protestantism, what standard would you erect to determine the rights and apportion the funds to the religious classes of society? The State could not give the sects money enough to make a school for each one. The distribution of the public moneys among the sects is an absurdity. It cannot be done.

#### Secular System Means Church and State.

But suppose that society would divide into simply Protestant and Catholic, which is really what is wanted. Suppose that the Romanist should be let off on religious grounds and take with him his share of the funds. What does that logically end in? Here is a school, and a system of schools, supported by the State on religious grounds; that is, endowed by the State. If a school may be endowed by the State on religious grounds, then a church may; and if a church may be, then a priesthood may; and that all together means Church and State. There is no logical middle ground between a school thus sustained and the hierarchy thus sustained. To suppose that the American people intend to do any such thing, or make a beginning of any such thing, seems quite absurd, when England is trying to relieve herself of that incubus after an experience of centuries.

And look at it on other grounds. It is proposed to instruct on the church theory. The State and all good citizens whose money is thus expended, have a right to enquire into the ability and fitness of the church to educate persons. The church has never made a free State. Those countries now most directly under her influence display no particular fitness for popular liberty. American citizens may certainly be excused not only for their unwillingness to set up this power of the medieval time here in the new world and the modern age, but for their suspicion of its sympathy with freedom.

## • GOOD HEALTH.

## Dyspepsia.

This is the scourge, perhaps the sin, of the American people. It is caused, in the most common cases, by eating improper food, in improper quantities, and at improper times. O. P. Ford, of Oswego, New York, gives his experience in the case, which may be made a benefit to some who are suffering from this terrible complaint. He says:—"Many of the pies, the cakes, and the puddings we take into our stomachs, if spread on the outside, would cause a blister; and still, to please the palate, we take them down, and expect to enjoy good health? The stomach grinds on, and continues to work over this unhealthy mass of food, until it gives out, and we call it dyspepsia.

"Now, then, when the digestive organ becomes thus weakened, blistered, and sore, the best thing to be done is to poultice it on the inside by eating, slowly, something that will soothe and heal. This may be bread and milk; corn starch, boiled in milk; eaten with a little cream and sugar; boiled rice and milk; eggs cooked in water, and rarely done; and, if the bowels are sluggish, bread made from Graham flour must be used, and all irritating substances must be avoided. No liquids should be used while eating, such as tea or coffee, as all fluids weaken the gastric juice of the stomach.

"I have received," concludes Mr. Ford, "the greatest benefit from a bandage wet with cold water, laid on my stomach every night. It may be applied by taking a linen towel and doubling it in size, to cover the stomach and region of the liver, wetting it in cold water, and wrapping a dry one over it. This treatment must be persevered in; for we did not take the dyspepsia in a day, neither can it be cured in a day."

Some of our friends are suffering much with dyspepsia. The remedial agents recommended by one who has been "a fellow sufferer," are easily obtained; and as they have been successful in curing one case, they may be in others.

## Good Health as an Element of Success.

It is no exaggeration to say that health is a large ingredient in what the world calls talent. A man without it may be a giant in intellect; but his deeds will be the deeds of a dwarf. On the contrary, let him have a quiet circulation, a good digestion, the bulk, the sinews of a man, and the alacrity, the untinking confidence inspired by these, and, though baving but a thimbleful of brains, he will either blunder upon success or set failure at defiance. It is true especially in this country, that the number of men in whom heroic intellects are allied with bodily constitution as tough as horses—is small; that in general a man has reason to think himself well off in the lottery of life if he draws the prize of a healthy stomach without a mind, or the prize of a fine intellect with a crazy stomach. But of the two, a weak mind in a herculean frame is better than a giant mind in a crazy constitution. A pound of energy with an ounce of talent will achieve greater results than a pound of talent with an ounce of energy. The first requisite to success in life is to be a good animal. In any of the learned professions a vigorous constitution is equal to at least fifty per cent. more brains. Wit, judgment, imagination, eloquence, all the qualities of the mind, attain thereby a force and splendor to which they could never approach without it. But intellect in a weakly body is "like gold in a spent swimmers pocket." A mechanic may have tools of the sharpest edge and biggest polish; but what are these, without a vigorous hand and arm? Of what use is it that your mind has become a vast granary of knowledge, if you have no strength to turn the key?

## Carpets, Dust, and Disease.

The course of recent inquiry into the causes of morbid states has rendered it more and more probable that the active causes of various maladies exist extensively diffused through the atmosphere, and having immediate access to the blood through respiration, become efficient sources of vital derangement. Hence the attention lately given to what is termed the "germ theory of disease," and the confirmation that has been lent to this view by Professor Tyndall's phrase, "dust and disease." Professor Tyndall calls attention to the efficiency of a mass of cotton fibres

placed before the mouth to strain out the atmospheric dust; and this property of fibrous or textile masses to separate and retain the floating impurities, suggests that carpets must exert a more or less harmful influence upon health. That they are traps and reservoirs of dust everybody knows; and it is notorious that they often become so foul that every step charges the air with their emanations. In this period of household changes it is well to remember that, although carpets are not perhaps absolutely dangerous to life, yet they are unhealthy than matting, and that naked floors are healthier than either.—*Galaxy.*

## Evils of High-Heeled Boots.

The high heels which it is now the fashion to put on men's, women's and children's shoes and boots, is beginning to attract considerable attention, from their numerous injurious effects. The practice is openly condemned by learned surgeons, and Dr. Wm. H. Pancoast remarked the other day, after performing a painful operation on an interesting little girl, whose feet had been ruined by wearing wrongly constructed shoes, "this is the beginning of a large harvest of such cases." And what else can be expected? Mothers walk the streets with heels on their boots from two and a half to three and a half inches high, and not more than an inch in diameter, and their daughters follow the same bad and barbarous practice. In many cases severe sprains of the ankles are suffered. But these are not the worst fruits of the high heel torture. The toes are forced against the fore part of the boot, and soon begin to assume unnatural positions. In many cases they are actually dislocated. In others the great toe passes under the foot, the tendons barden in that position, and lameness is contracted, for which there is no cure but the knife. When the injury does not take this form, it assumes other aspects almost as horrible, and it is high time society should set its face as a flint against any continuation of the absurd and unnatural custom.

## More About the Oleander Poison.

We made mention, a few days since of the fact that the Oleander, so common and popular in our gardens, was a very poisonous plant. We have since met with the following paragraph in the last number of *Tilton's Journal of Horticulture*, in further relation to this matter:—

The oleander is classed by botanists in the Dogbane family, of which many of the species are acrid-poisonous. Phillip Miller, of the Botanic garden, Chelsea, England, marks in his *Gardener's and Botanist's dictionary*, that "oil in which oleander leaves are infused, is recommended in the itch and other cutaneous diseases, in preference to mercurial preparations for children and delicate constitutions; but that the leaves are acrid and poisonous, and therefore not proper to be used internally without great caution. The branches, when burnt, emit a very disagreeable odor." Even the odor of the flowers, when inhaled in close rooms, sometimes produces very unpleasant effects.

The remedies for this poison on such as are commonly used for narcotic and acrid poisons.

TREES OUT OF PLACE. Trees are out of place when they over-shadow the roof of a house or darken its windows. No small part of the sickness of families is attributable to the shading of dwellings by overhanging trees and thick clustering vines. Our bodies need light, pure sunlight, and a great deal of it, and our spirits need it none the less; and he who shuts out this genial dispenser of health makes a great mistake, and does a great wrong. All medical testimony is concurrent upon these facts.—*Ex.*

LIGHT IN THE SICK CHAMBER.—The quantity of light admitted into the sick chamber is a matter of immense importance to its suffering occupant. As light is an element of cheerfulness, it is on that account desirable that as much should be admitted as the patient can bear without inconvenience. The light should be soft and subdued and not glaring. Care should be taken that bright, lustrous objects, such as crystals and mirrors, should be kept out of sight.

THE waters of Lake Michigan now flow through the formerly filthy Chicago River into a canal and thence to the Illinois River. An important sanitary fact for Chicago.



# Scientific Press.

W. B. EWER, SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG,  
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NEW YORK OFFICE: Room 25, Park Row. W. E. PARTRIDGE, Editorial and Business Correspondent.

## San Francisco:

Saturday Morning, July 22, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, July 19, 1871. Legal Tenders buying, 89½; selling, 90. Gold in New York to-day 112½.

## Table of Contents.

Double-Acting Plunger Pump, Ill.; Eighth Industrial Exhibition; New Alloy of Copper and Iron.....	33
MECHANICAL PROGRESS.—New Galvanic Gas Lighter; Iron Paper; Needle Making; New Transit Instrument; Narrow Gauge Engines; Machine for Folding, Pasting and Trimming Papers.....	34
SCIENTIFIC PROGRESS.—Amer. Telegraphic History; Compressed Slack Coal; Ozone and Explosives; Electrical Shadows; Fixing Magnetic Lines; Lithofracteur; Boiling Point of Glycerine.....	34
Trip to Colorado; Swamp and Marsh Lands; Suspension Chutes for Loading Vessels; Smelting at White Pines; Prediction; Thimble Skein Wagons.....	35
MINING SUMMARY; Mining Shareholders' Directory; Mining Stocks; Market Rates.....	36-37
List of Patents; Notices of Patents; Editorial Notes Eastward, Ill.; N. Y. Mercantile Library; Silk.....	38
Public School System of the U. S.; Dyspepsia; High-Heeled Boots; Oleander Poison.....	39
Strike at Amador; Railroad Rumors; Cal. Mines and English Capital; University of Cal.; Dovetailing Machine; Mechanics' Institute Exhibition.....	40
Patent Fly Trap, Ill.; Elastic Car Wheel, Ill.; Mechanic Arts College; Yellow Fir for Ships.....	41
To Cool Water; Soap; Tanning Leather; How Much Bread a Barrel of Flour Makes.....	42

**THE STRIKE AT AMADOR.**—The troops have returned from Sutter Creek and affairs have been adjusted. The terms of agreement are,—that the rates of wages shall be \$2.50 and \$3 for underground work, and such prices for top men as may at the time of employment be agreed upon; and that no Chinese shall be employed. It is a matter of congratulation that affairs have been settled. Should in the future any causes of disagreement arise, we hope that these may be amicably discussed and adjusted without any actual rupture between the parties.

## Important Railroad Rumors.

Various rumors have been afloat during the past few days, to the effect that the Central Pacific has bought out the California Pacific Railroad. The suspension of work on several branch roads of the latter company, and the coincident departure of Messrs Latham and Stanford for New York have given rise to much speculation.

There is another rumor that the Pennsylvania Central has purchased both of the above named roads.

We have no definite facts to give in the matter, and the first positive knowledge, should the reports turn out true, would be the announcement of the completion of some bargain on the part of the companies. We notice, however, that advertisements have been withdrawn from the papers for the Yosemite routes, and give the item for what it is worth.

If the reports turn out true, either way, some of our projected railroads will not be completed just at present.

## Contributions From Japan and China.

Mr. H. D. Dunn, agent for the Industrial Fair, has brought 170 packages of most varied description from Japan, and 19 packages from China, making a total of 60 tons. These will make a fine showing. The next steamer will bring 20 to 25 tons additional. The Japanese Government has appointed a special committee of nine, who are now in the city, who will report on the Fair, and on our agricultural, mining and manufacturing industries.

In order that the public may form some idea of the variety and extent of the proposed exhibit, we append the following list furnished the Institute by Mr. Dunn:

Flax in its raw state.  
Flax in various stages of manufacture.  
Vegetable Tallow in its raw state.  
Vegetable Tallow manufactured into wax and other articles.  
Coal.—Sample lumps of the different varieties in Japan.  
Iron Ore.—Samples of the different qualities in Japan.  
Iron in pig and in various forms, as rod, bar, sheet and plates.  
Steel, cast and in bar and other shapes.  
Copper Ore.—Sample specimens.  
Copper in pig and in bar, rod, sheet and other forms.

Lacquer and Varnish Gums.—Samples of the various kinds.  
Oils of vegetable and mineral production.  
Lacquer varnishes of the various kinds used.  
Tools used by carpenters, stone masons, blacksmiths, plasterers and farmers.  
Mating in rolls of various kinds. Also mat clothing used against rain.  
Cotton in its raw state. Also seed of same.  
Cotton manufactures, say in thread, piece and smaller articles.  
Silk, raw, dross, reeled ready for manufacture.  
Silk in skeins and woven in different ways.  
Also silk garments.  
Paper, all varieties made.  
Paper stock or materials from which the various kinds of paper are made.  
Bamboo Work, all the various kinds of manufacture, viz.: basket work, carvings, thread work, wove and spun work.  
Lacquered ware in all its varieties.  
Porcelain ware in all its varieties including inlaid and enamelled ware.  
Fans.—An assortment of the different kinds made.

Ivory Carvings.—An assortment showing skill in workmanship.  
Crystal Work.—Plain stones, also mounted in gold and silver jewelry.  
Bronze Work.—Plain, carved and inlaid with other metal and enamelled.  
Bird cages of bamboo and other material.  
Fishing tackle, lines, etc.  
Colors in lacquer and in a dry state.  
Brushes, armor, Japanese war weapons, ancient and modern.

Cutlery.—From swords to the smallest articles made.  
Leather.—In skins of all kinds made.  
Leather Manufactures.—All varieties.  
Sugar in its raw and refined state.  
Tobacco in the leaf and manufactured states.  
Umbrellas, lanterns, mirrors, costumes, hats, shoes, musical instruments, kites, toys, etc.  
Wheat and other grain, dry vegetable produce, flour.  
Fruits dried and preserved.  
Stons suitable for cutlery and lithographic purposes.  
Mineral specimens and curiosities.  
Coins.—Specimens of ancient and modern dates.

Carvings in wood and stone.  
Tea.—Specimen boxes of various kinds.  
Tortoise shell work in all its varieties.  
Fine metal castings, bells, copper smith work.  
Glass work in its varieties.  
Woods used for cabinet and furniture purposes.  
Screens, ornamental and useful.

## University of California.

### Meeting of the Regents.

The annual meeting of the Board of Regents was held on Tuesday, July 18th. In accordance with the recommendation of the Faculty, it was voted to confer the degree of Bachelor of Arts on F. H. Whitworth, E. W. Blaney, G. D. Cobb, C. B. Learned and E. B. Pomeroy, of the graduating class; and the degree of Master of Arts on J. R. Glascock and G. E. Sherman of the class of 1865, C. A. Garter and W. D. Harwood of 1866, and W. Gibbons and M. P. Wiggins of 1867.

Reports were received from Prof. Carr; on the Medal Fund (which now amounts to \$1,976), the proceeds of which are to be applied annually for a medal for the most distinguished student of the year; of the Land Agent; of President Durant, on the condition and wants of the University; and on

the Preparatory Department.

The Regents resolved to attend the Commencement exercises in a body.

### Commencement Day.

Wednesday was Commencement Day at the University at Oakland. A procession was formed at 10 A. M., received the guests from San Francisco at the railroad station, and escorted them to the Music Hall.

The following was the order of exercises here:

1. Music—Invocation, by Rev. Dr. Thomas.
1. Salutatory Oration (in Latin)—Edward Wellington Blaney, San Francisco.
2. "The Growth of the Democratic Principle"—Everett Benedict Pomeroy, Oakland.
3. "The Limits and Progress of Knowledge"—Charles Burt Learned, Oakland.
4. "A Student's Retrospect"—George Downes Cobb, San Francisco.
5. "A Defense of Doubting"—Edward Wellington Blaney.
6. "Columbus and the Genius of Discovery," with the Valedictory Address—Frederick Harrison Whitworth, Seattle, W. T.
7. The University Oration—His Excellency H. H. Haight, Governor of California.
8. Poem; by Miss Ina D. Coolbrith; read by Rev. H. Stebbins, DD.

Degrees were then conferred as per vote of Regents above.

### Alumni Meeting.

The meeting of the Alumni of the Pacific coast was held at 3 P. M. This association comprises the alumni of all colleges, who are resident on the coast. President J. B. Felton presided. An election of officers resulted as follows: President, J. G. McCullough; Secretary, Prof. M. Kellogg; Executive Committee, E. Tompkins, J. W. Dwinelle, O. P. Fitzgerald. Several honorary members were elected. Rev. G. Ames, of San José, delivered the oration. The meeting then adjourned to Brayton Hall to partake of the dinner given by the Regents. Toasts, speeches and songs followed in quick succession, and then the meeting broke up after singing Auld Lang Syne.

## A Valuable Dovetailing Machine.

The Heath dovetailing machine, patented by Elander Heath in 1870, and since improved by Mr. S. W. Shaw, is now on exhibition at B. H. Freeman's stair building establishment on Mission street near First. The device is certainly a most valuable one.

In its improved form, there is a cone, made up of a number of frusta, or parts of the cone, so arranged as to hold most securely a set of cutters, and allow of their easy placement or removal. Over this cone is a guide, inclined at an angle to the horizontal, for holding the boards, which is moved over the revolving cutters. This part of the device is for cutting the mortises. For cutting the tenons, a cylinder is used in the place of the above mentioned cone, and the guides are at an angle to the axis of the cylinder.

The machine originally had saws, but now has cutters. The advantage is that the cutters can be sharpened with great rapidity—in much less time than the saw teeth, being fewer in number. Again, as they are sharpened on the under side, there is no difficulty about gauging them to cut the proper depth. When properly gauged at the commencement, they will not lose over one sixty-fourth of an inch in all until completely worn out, and they will last with ordinary care for many years. The cutters are arranged in two spirals, of 9 cutters each, on the cone or cylinder. By means of a light frame placed over the guides, blind dovetails for drawers, etc., can be readily cut.

This machine has been used for eight months at the Box Factory of Swan, Dunbar & Co., 114 and 116 Spear street. Driven by 3-horse power, with one man's attendance, it will do the work of 20 men at least, as Mr. Swan has assured us.

We are very much impressed with the value of this device. Mr. Shaw proposes to introduce it now at the East. Persons here can see the machine, and learn further particulars, by applying to Mr. Swan at his factory, as above.

**EARTHQUAKE.**—A severe shock of earthquake is reported as felt at the Joe Walker mine, Kern country.

## California Mines and English Capital.

The London *Times* attempts to show the dangers of investing capital in the mines of our country, and succeeds in showing that it knows nothing of the actual condition of affairs, and that its prejudices against the United States render it incapable of drawing any logical conclusions on the subject. Starting on a foundation of gross ignorance, and building up its articles in blind prejudice, it succeeds in erecting a most pitiable monument of journalistic nonsense. The gist of its remarks is that there are no paying mines here, and that all American (or, at least, Californian) miners are swindlers.

The *Times* has just so much reason for its remarks, viz: that some dishonorable schemes have been gotten up here to catch English capital, and that some dishonest people are concerned in mining. But this is no argument at all against mining itself. The same may be said against any country, people or occupation. J. Ross Browne has written a letter to the *Times*, which effectively answers it, and in reply to which that paper has but lame remarks to make. He speaks of the yield of our mines and of the profits of mining investments. He says that in twenty years' experience on our coast, he has not learned of half a dozen cases in which British capital has been sacrificed by fraud, "and in those cases which have occurred, I venture to assert that the guilty parties do not all reside on the Pacific coast."

We quote the following from Ross Browne's letter, as it touches on a point on which considerable stress has been laid. He says:

"Why do you come here for capital? is a very common question. If our mines are so productive, why not enjoy the profits of them ourselves? Let me answer these questions Yankee fashion. If you can get four per cent. a year at home for your money, why invest it in foreign securities? If your domestic investments are so much safer, why not enjoy them? Because you do not get enough at home for your money, and we come here because we have to pay too much at home for our money. The last number of the San Francisco *Scientific Press* says: 'On this coast a mine is not considered a success unless it returns the enormous dividend of five per cent. a month—at least, our capitalists are unwilling to invest at lower rates.' The truth is, they have not the capital to invest; the demands for capital to open up good mining properties are far greater than the supply. As long as the superficial deposits lasted, expensive machinery and skilled labor were not required; but quartz mining requires both, and we are compelled to seek for capital to secure them where it is most abundant. Many excellent mines, capable of producing two or three per cent. a month upon a given capital, remain idle because the owners have gone as far in opening them as their means will permit, and cannot borrow money, even at five per cent. a month, to erect the machinery necessary to work them with profit. It is a great mistake to suppose that because an enterprise is promising or a property valuable, there can be no good reason for disposing of it. Such logic would put an end to all exchange of commodities, all traffic between individuals, all intercourse between nations. I contend that no business, judiciously conducted, is more profitable than mining."

**SMITH TRUSS BRIDGE.**—This bridge appears to be ever increasing in popularity, and we often see the highest testimonials in its favor. Not only are they extensively used in the "Western States," but they are also adopted on the Atlantic and Pacific coasts. The bridges over almost all the rivers in Nebraska have been built by the Smith company. After a most searching comparison, the Atlantic & Lake Erie Railroad have adopted the Smith Truss for all the bridges over their line. The company is said to have the most extensive works of the kind in the United States at Toledo, Ohio. The Pacific Bridge Company at Oakland, Cal., are the agents for this coast, and we recommend an examination of their plans.



### A Patent Fly Trap.

The simple device herewith illustrated is the invention of Mrs. Farnan, of Indiana, and is known as the "Hoosier Fly Trap." It was patented January 31st, 1871, and is one of the list of useful devices of which it may be truly said, that "necessity is the mother of invention," for we are quite sure that the lady patentee was vexed by both the troublesome flies and the unsatisfactory appliances for destroying them patented by male inventors by the thousand, all of which had failed of entire success.

The device is very simple, as our cut shows. Its basis is merely a tin dish with several corrugations formed in the rim, so that when the round wire screen is set into it, openings are left for the flies to enter, as shown near the arrow point. The bait is placed on the bottom in the center, and the flies attracted in, after eating, naturally fly upward towards the light, and pass through the small opening at the apex of the inner cone into the outer cylinder and are trapped effectually, and may be "mercifully destroyed" by boiling water, or they may be mashed or starved to death at the pleasure of their captor. Over one quart at a time have been caught by the patentee for this State, T. B. Hopkins, No. 244 Sixth street, in this city. Several thousands of the little pests may thus be hived in a batch.

For bait, bread soaked with sugar and milk will answer, but it is more attractive when lager beer is used with sugar or molasses. The best bait, however, is considered to be sawdust mixed with molasses and lager beer, and we would advise all humanitarians to give the flies their choice for their last meal. The trap is retailed at the reasonable price of \$1.25, or four for \$5, and at favorable rates to dealers. It may be had at the number above stated, where rights for territory in California are also for sale.

### A Good Move.

Messrs. Vale & Warner of the S. F. Employment Office, 230 Sutter street, are seriously at work getting immigrants who will go to work on farms. It is difficult to find persons in the city who are willing to accept such situations. Messrs. V. & W. have a branch office in Scotland and propose establishing one in England, and their efforts are directed mainly to getting farm laborers, a class which we need most of all out here. They can draw from a healthy and industrious population, and we wish them success. Mr. Vale informs us that he will have here, before next Christmas, one hundred good farm hands. Such an institution as his is capable of doing our coast a very great benefit.

**YELLOW FIR FOR SHIPS.**—Letters to the Secretary of the Treasury, Hon. G. S. Boutwell, from T. G. Phelps, Collector of the Port, R. H. Waterman, U. S. Inspector of Hulls, and C. T. Hopkins, Secretary Board Marine Underwriters, all of this city, have been published. They all praise Puget Sound Yellow Fir for ship building in comparison with any other wood, as light, strong, cheap and easily worked, and as obtainable of any length up to 120 or 130 feet and of almost any required dimension. It is likewise of very considerable durability; and all the writers concur in the statement that, if preserved, it must be considered one of the very best ship building materials in the world.

Boston has a palace street car.

### The Excelsior Elastic Car Wheel.

For a long time the ingenuity of inventors has been taxed to produce a car wheel which should have a certain measure of elasticity while retaining a proper amount of rigidity to carry the car with safety. The advantage of the elastic system of wheels having been long ago demonstrated, its value in preserving the axles from the granulating effect of the jar and in relieving the truck from the heavy hammering in fast motion, nothing remained but to devise the best form for the wheel. We give herewith cuts of one of the latest and most simple forms presented. The metal portions of the wheel consist of but three parts. These are so arranged as to enclose sufficient space for the rubber packing which is preferably of solid round rods, cut of the proper length.

The following description will render the construction plain: Fig. 1 is a trans-

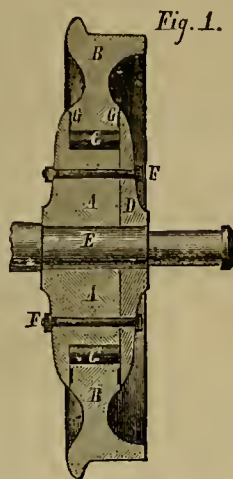


Fig. 1.



Fig. 2.

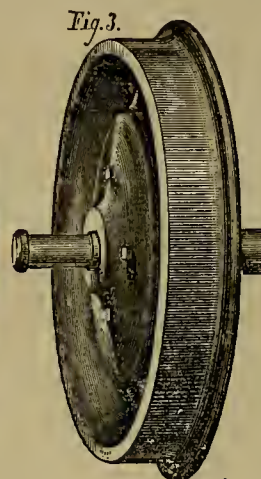
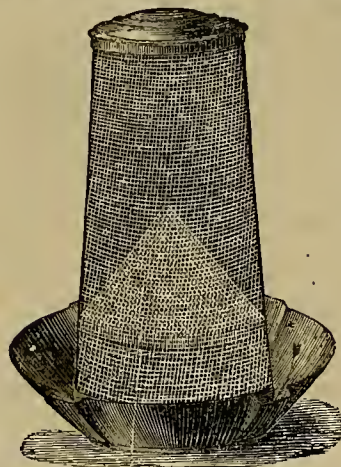


Fig. 3.

THE EXCELSIOR ELASTIC CAR WHEEL.

verse section through the center of the wheel. Fig. 2 shows the wheel with the covering cap removed, showing the shape of the center-piece or hub and position of the rubber. The letters refer to similar parts in each of the figures. A, is a flanged center-piece, having something



THE HOOSIER FLY TRAP.

like the form of a four-rayed star, with the points rounded off. B, is the exterior portion of the wheel, separated from the center-piece, A, by the cylindrical rubber springs, C. A side plate, D, is pressed on to the axle, E, simultaneously with A, after having been made to assume its proper position by the bolts, F, passing through A and D. When thus bolted, it, together with the center-piece, A, compresses rubber rings, G, let into grooves formed in the exterior part of the wheel, B, and also compresses longitudinally the series of cylindrical rubber springs, C. The result is a wheel, elastic vertically and laterally.

The bolts, F, are only necessary to hold the parts in adjustment while the wheel is pressed on the axle in the usual way. They sustain no strain in use. Fig. 3

shows the wheel as completed and placed on the axle ready for use.

The points claimed for this wheel are these: It is as nearly noiseless as it is possible to make a wheel where an iron tread comes upon an iron rail. The wheel being elastic virtually puts springs under the whole of the weight, excepting only the thin strip of metal constituting the rim and flange. In an ordinary truck only a small part of the weight is supported on the springs, and the axle, one of the most vital parts, is exposed to the full force of the concussions when running over rough roads, or when running fast on the smoothest. The "Excelsior" wheel relieves the axle from the force of these shocks and vibrations by the row of elastic rollers which connect the hub with the rim of the wheel, and thus prevents the crystallization which they would otherwise induce.

Another point not to be lost sight of is the fact that when the rim of the wheel wears out so as to need renewal, it is unnecessary to take the hub off from the axle and replace it. Nor is a new wheel necessary.

It is only needful to remove a few bolts, take off the center-piece, remove the old rim and substitute a new one. The hub being as good as ever, there is saved, of course, the expense of the hub and the cost of boring out a new wheel. The wheel has a lateral elasticity which enables it to resist easily the tremendous side thrusts to which wheels are subjected. The circular ring of packing, G, receives the full force of the lateral shocks before they can be transmitted to any part of the hub or axle.

Should our readers desire any further information upon this subject, we would refer them to the Excelsior Car Wheel Co., 30 Vesey St, New York City, who, we understand, are now manufacturing and introducing these wheels.

### Mechanic Arts College.—Closing Exercises.

The course of lectures of the Mechanic Arts College was closed by appropriate exercises last Saturday. President Durant, of the University, presided, and made fitting remarks on the occasion, speaking of the advantages of such a course, and referring to the influence of the arts and sciences, of all education, on the solution of the great problem of the world, the social problem. He extended an invitation to the Mechanic's Institute to participate in the Commencement Exercises of the University on the 19th, and hoped that the class, having a right to join in these, would largely avail themselves of this right.

Rev. Horatio Stebbins, one of the Trustees of the University, then delivered a most excellent address on the Public School System of the United States, the principles on which it is founded, and some social, secular and religious misconceptions which exist in regard to it. The address was most valuable and interesting, and we commend to our readers the report of it which we give on another page. It was preceded and followed by remarks to the class in regard to the course of lectures which had now come to a close.

The class was then dismissed. One of

its members then called it to order again, and a meeting was organized with Mr. M. Lynch as President and Mr. R. Y. Hayno as Secretary. On proper motion, a committee was appointed by the President to draft resolutions of thanks. This committee was constituted as follows: Mr. R. A. Marden, Miss Kate Kennedy, Mr. S. H. Daniels, Mrs. M. F. Grover, Mr. J. P. Damron, Miss Jessie Smith, Dr. W. A. Grover, Miss J. Parker, Mr. P. F. C. Sanders and Miss Kate M. Atkinson. The committee reported the following resolutions which were adopted:

WHEREAS, The course of lectures provided by the Board of Regents for the students-at-large of the Mechanic Arts College of the University of California, has now terminated, and the class, which for nearly eight months has attended these lectures with so much satisfaction, improvement and pleasure, will to-night go out of existence, and the 500 members be separated and scattered; and as these lectures have been a constantly-recurring source of instruction and pleasure, their absence will create a void difficult to fill, and be a loss to that portion of the community they are intended to reach, and which we realize more fully now that the term is completed,

Resolved, That we, the students-at-large of the Mechanic Arts College, desire to express our warm gratitude to the Regents of the University of California, and our appreciation of the efforts made on our behalf, in furnishing, during the last eight months, the choicest mental food and the most delicate recreation, through means of the distinguished Professors of the State University and the Saturday evening lectures now terminated.

Resolved, That to the Professors of the University of California, for their patience and consideration to the class, occupying as they did a new and untried field, we are under deep and lasting obligations, and we consider that to them the success of these lectures are mainly due.

Resolved, That we desire to thank the Mechanics' Institute of this city for their hearty coöperation in the efforts of the Regents.

Resolved, That it is the sense of this meeting that the Regents, in adopting this mode of instruction, displayed a knowledge of the needs of the community, which gives us an assurance that the benefits of the State University will be extended in the broadest sense; that they are not unmindful of the needs of the people; and that the University established by the wisdom of the people represented in the State Legislature, and being still in its infancy, is deserving of the warmest sympathy and best wishes of the people; as its sphere of usefulness is large, its means should be equally so—and the Legislature should see to it that in its infancy it has a generous subsistence, that it be during its youth imbued with broad and generous principles—so that in its manhood it be may be liberal and great.

Resolved, That to the distinguished head of the University and President of the Faculty, Dr. A. Durant, at this moment of parting, we respectfully tender our kindest wishes and regards.

Resolved, That to A. S. Halladie, President of the Mechanics' Institute and Regent of the University, we respectfully tender our heartfelt thanks for the many acts of kindness he has shown us, and we will always remember that to his kind and watchful care we are indebted for many of the privileges we have enjoyed during our attendance at the Saturday evening lectures of the Mechanic Arts College.

The class then voted to be present in as large attendance as possible at the University Commencement, and to attend as a class. Mr. M. Lynch was elected Class Marshal for the occasion.

A vote of thanks to Rev. Horatio Stebbins for his able address was enthusiastically carried. The class then adjourned.

**PEARS FOR THE EAST.**—C. W. Read, of Washington, Yolo Co., shipped 10 tons of Bartlett pears East by the C. P. on the 19th, from his orchard. He ships 20 tons more on the 22d. They go in Booth's refrigerating cars.



## DOMESTIC ECONOMY.

### How to Cool Water.

At this season of the year a cool draught of water is a luxury which we may enjoy with a little care. By the following method, simple and inexpensive, water may be kept almost as cold as ice. Let a jar, pitcher or vessel used for water, be surrounded with one or more folds of coarse cotton, to be constantly wet; the evaporation of the water will carry off the heat from the inside, and reduce it to a low temperature. In India and other tropical countries, where ice cannot be procured, this expedient is common. Let every mechanic and laborer have at the place of his work two pitchers thus provided, and with lids or covers, one to supply water for the evaporation, and he can always have a supply of cold water in warm weather. Any person may test this by dipping a finger in water and holding it to the air on a warm day; after doing this two or three times he will find his finger uncomfortably cool. This plan will save the bill for ice, besides being more healthful. The free use of ice water often produces derangement of the internal organs; which, we conceive, is due to the property of the water independent of its coldness.

### Soap.

When you take up a small square of perfumed soap and lather your hands briskly with it, do you ever stop to think how hard it would be to get along without the cleansing agent? "How are you off for soap?" would become one of the most important questions of the day, if you were to have a soap-dearth as well as a coal famine. Yet the use of soap is not three hundred years old. We hear about the lily hands and the pure cheeks of the fair ladies of the days of old renown—but how in the world did these *belle dames sans merci* manage to keep their hands and faces so clean and sweet without any soap? The high-bred lords and ladies of the Middle Ages were compelled to resort to the free use of aromatic essences and oils to atone for a want of cleanliness; while the voluptuous Greeks dipped their garments into perfumed water. So we see that the world learned to be sweet before it learned to be clean. Just imagine that Tennyson's "Lily Maid of Astolat" never saw even so much as a cake of brown Windsor—not even a piece of homely rosin soap!—*Lake Side Monthly*.

**TO DESTROY FLYING MOTHS, ETC.**—For all moths, and beetles that fly by night, use fire to trap them. A fire of shavings, or any thing that will make a blaze, kindled in the evening, will destroy thousands. The more flame the better, if it does not scorch the leaves. A cheaper method still, is to take the half of an old sugar-hogshead, or any open vessel, with a broad surface, partially filled with water, and set a lighted glass lantern on a block or stone in the center of the water at night. The moths are attracted by the lantern and its reflection, and fall into the water. The advantage of the sugar-hogshead is, that it serves for a trap by day as well as by night. For moths that fly by day, take wide-mouthed bottles, half fill them with sweetened water, and vinegar, and hang them in the trees, changing the liquid weekly. Thousands of insects are drowned.

**HOW TO CLEAN FLOORS.**—Office floors darkened by dirt may be satisfactorily whitened at the spring cleaning by washing with hot ley of caustic soda to remove any grease, and when nearly dry, moistening with very dilute hydrochloric acid, and then with a thin paste of hypochlorite of lime, left on over night. When washed off in the morning, the whiteness of the floor will be equally surprising and delightful. Stone house fronts are cleansed by throwing against them a jet of water under steam pressure. This method is cheap, and does not injure ornamental parts. Aside from the clean and fresh appearance thus secured, it is calculated that if all the walls of the buildings in London were kept clean, instead of being grimy and dark from top to bottom, a gain would be obtained of half an hour of daylight out of every twenty-four.

**TANNING LEATHER.**—It is often a matter of both convenience and economy in the household or on the farm to be able to do a little tanning; so we give here an approved receipt which may prove useful to some one who is not acquainted with it: "Soak the skin or hide eight or nine days in water, then put it in lime; take it out, and remove the hair by rubbing it, and soak it in clear

water until the lime is entirely out. Put one pound of alum to three of salt, dissolve in a vessel sufficiently large to hold the hide; soak the hide in it three or four days, then take it out, let it get half dry, and then beat or rub it until it becomes pliable. Leather prepared by this process will not do so well for shoes, but answers well for ham strings, back hands, and various other purposes on the farm.

### How Much Bread a Barrel of Flour Will Make.

They have had a bread controversy in Washington City. Some weeks ago fault was found with the bakers for raising the price of bread; and, a practical baker taking the ground that bread could be made for five cents a loaf, while others claimed it could not; to settle the matter it was arranged that three barrels of flour should be purchased and baked at the government bakery the officer in charge to be the arbitrator. The result was a yield of 560 pound loaves of bread to the barrel. This, it is stated, is at variance with the past experience of the Washington bakers, who have not been able to obtain more than 250 pound loaves from the barrel in the regular course of business.

### Pickling Green Corn.

This is a much cheaper method of preparing corn to be used in winter in a fresh state, than that of canning it: When the corn is a little past the tenderest roasting-ear state, pull it; take off one thickness of the husk, tie the rest of the husk down at the silk end in a close and tight manner; place them in a clean cask or barrel compactly together, and put on brine to cover the same of about two-thirds the strength of meat pickle. When ready to use in winter, soak in cold water over night, and if this does not appear sufficient, change the water and freshen still more. We have used corn prepared in this way for two seasons, and it is excellent; very much resembling fresh corn from the stalk.—*Ec.*

**TO FLAVOR TOBACCO.**—This is done by a mixture of one part each of lemon peel, orange peel, figs, coriander seed, and sassafras; one-half part each of elderberries, and cinnamon; two parts of saltpetre, three of salt, and four of sugar. This mixture must be digested in fifty parts of water, and, before applying it, flavored with an alcoholic solution of gum benzoe, mastic, and myrrh. It is said that this decoction gives a flavor to common leaves resembling closely the Porto Rico; but to this end the leaves must be well dried, about a year old, well permeated with the preparation, kept in a pile for eight days, turned daily, and finally dried.

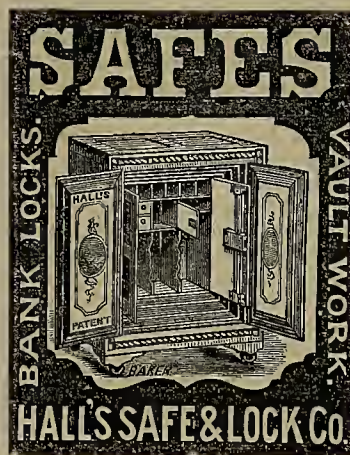
**TO KEEP MILK SWEET.**—A teaspoonful of fine salt or horse-radish, in a pan of milk will keep it sweet for several days. Milk can be kept a year or more as sweet as when taken from the cow by the following method: Procure bottles, which must be perfectly clean, sweet, and dry; draw the milk from the cow into the bottles, and as they are filled, immediately cork them well, and fasten the cork with pack-thread or wire. Then spread a little straw in the bottom of a boiler, on which place the bottles, with straw between them, until the boiler contains a sufficient quantity. Fill it up with cold water, and as soon as it begins to boil draw the fire and let the whole gradually cool. When quite cold, take out the bottles and pack them in sawdust in hamper, and stow them away in the coolest part of the house.—*Southern Farmer*.

**PEA-SAUSAGE.**—The *Vallejo Chronicle* says that a citizen of that town has on exhibition a pea-sausage, which is a specimen of the condensed rations carried by the Prussian soldiers in their late campaigns. It is made of the condensed juices of beef and pea flour, and in that shape a soldier can carry enough for thirty days substance without inconvenience. Our own Government will test the new rations among the troops in Arizona.

**MENDING TIN PANS.**—A correspondent of the *Rural New Yorker* says: "Tell your lady readers to mend their tin pans with putty. It is very easily done, and is much better than to throw them away. Put it on the outside; let it thoroughly dry, and they will never have to mend that place again. I have them that I have used for twenty years."

**TOMATOES.**—With meat, raw, should be sliced up in vinegar, salt and pepper, like cucumbers. For tea, use sweet cream and sugar; they are almost as good as strawberries.

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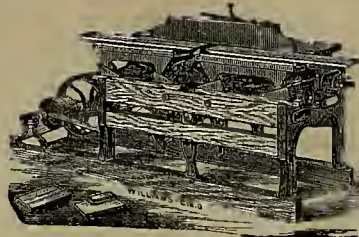
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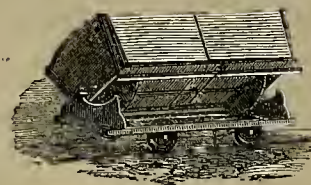
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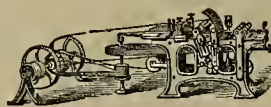
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and length manufactured to order.  
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26

**SAN FRANCISCO MILL.**  
**HOBBS, GILMORE & CO.,**  
Manufacturers of Boxes,  
Market Street, bet. Beale and Main.  
For sale—Mahogany, Spanish Cedar, and other Woods.

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**SEAL ENGRAVER,**  
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Brass and Steel Stamps and Dies, 608 Sacramento street,  
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The first and only Manufacture on the Pacific Coast.  
MEERSCHAUM MOUNTED WITH SILVER. Meerscham  
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FREE, and to any part of the city at reasonable rates.  
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In soliciting anew the public patronage of WATCHES of domestic production, the AMERICAN WATCH  
COMPANY respectfully represent—  
That no fact in the history of manufactures is more completely demonstrated than that the best system of  
making Watches is the one first established by them at Waltham. That system always had the warrant of reason  
and common sense, and now the test of time in the trial of the Watches themselves cannot be denied to have been  
ample and satisfactory. It is admitted on every hand—the evidence of daily observation and common reputa-  
tion—that the Watches not only keep correct time, but that as machines they ENDURE. It should seem that nothing  
more is needed, but that their sizes, shapes and appearance should suit the tastes of the people. As to all these  
conditions the American Watch Co. are now fully prepared to answer the exactions of the market. They con-  
fidently assert there is no longer any need for such reasons to import watches of any description whatever. Every  
size in ordinary demand, every shape and every variety of finish and decoration, may now be had. And as to  
price, the recent reductions leave no room for doubt that the Waltham system of Watch-making is

The Most Economical as well as the Most Reliable,

And that the Waltham Watch is the Cheapest as well as the Best.

Many new varieties of movements have been added during the last year, all of which display the Latest Im-  
provements in design and finish, and evince the rapid progress the Company is making toward perfection in the  
art. Among these the new small size Watch, for Boys and young gentlemen, is to be specially noted. A very  
low price has been made for this Watch because it is a boy's watch, and with the object of bringing it within the  
means of boys of all classes. Price being considered,

No such Watch, in Quality and Beauty,

Has ever, in any country, been produced.

The "CRESCENT-STREET" FULL PLATE WATCH, added during the last year, is now made either with  
or without stem-winding and setting attachment. This Watch, in either form,

The Company Challenges all Manufacturers of all Countries

To heat or equal for its price. It is made with all the latest improvements in every part—improvements which  
insure to be the only good SAUCE. The success of  
this most delicious and  
unrivalled Condiment  
having caused certain  
dealers to apply the  
name "Worcestershire Sauce" to their  
own inferior compounds, the public is  
hereby informed that the only way to  
secure the genuine is to ask for LEA &  
PERRINS' SAUCE, and see that their names  
are upon the wrapper, labels, stopper and  
bottle.

"American Watch Co., Crescent Street."

Counting on such destination for this variety of their manufactures, the company devote the greatest care to its  
construction, employ upon it only their best men and best machinery, and issue it with their reputation at stake  
upon its success.  
For sale by all leading jewelers. No Watches retailed by the Company. For all other facts address

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13t-3a

## LEA & PERRINS'

CELEBRATED

## Worcestershire Sauce.



Declared by Connois-  
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SAUCE. The success of  
this most delicious and  
unrivalled Condiment  
having caused certain  
dealers to apply the  
name "Worcestershire Sauce" to their  
own inferior compounds, the public is  
hereby informed that the only way to  
secure the genuine is to ask for LEA &  
PERRINS' SAUCE, and see that their names  
are upon the wrapper, labels, stopper and  
bottle.

Soms of the foreign markets having  
been supplied with a spurious Worcester-  
shire Sauce, upon the wrapper and labels  
of which the names of Lea and Perrins have been  
forged, L. and P. give notice that they have furnished  
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stant proceedings against manufacturers and vendors of  
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be infringed.  
Ask for LEA & PERRINS' Sauce and see name on  
wrapper, label, bottle and stopper.  
Wholesale and for export by the Proprietors, Worces-  
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We have on hand the Best and Purest  
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We also offer to consumers

**Acids, Sulphate of Copper,**  
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celebrated first premium  
Artificial Limbs with Rub-  
ber Hands and Feet, has  
published a new and enlarged edition of his Illustrated  
Pamphlet, of importance to all who have suffered am-  
putations, especially to officers and soldiers who lost  
their limbs in service. Copies sent free to applicants  
21v1-13t-12t

## Travelers' Guide.

### CENTRAL PACIFIC RAILROAD.

Passenger Sunday excepted	Express Train Daily	JULY 9, 1871.	Express Train Daily	Passenger Sunday excepted
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:54 P.M.
3:50 P.M.	7:30 A.M.	San Jose	5:30 P.M.	12:15 P.M.
7:58 P.M.	12:21 P.M.	Stockton	11:23 P.M.	8:35 P.M.
9:25 P.M.	2:10 P.M.	Sacramento	11:45 A.M.	7:00 A.M.
	4:10 P.M.	Marysville	8:10 A.M.	
	7:50 P.M.	Sacramento	5:40 A.M.	
		Sacramento	11:45 A.M.	
		Colfax	8:45 A.M.	
		Reno	1:00 A.M.	
		Winnemucca	4:05 P.M.	
		Battle Mountain	1:25 P.M.	
		Elko	8:35 A.M.	
		Ogden	5:20 P.M.	

**SAN JOSE BRANCH.**—LEAVE SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 3 P.M. daily. Returning  
leave San Jose at 1:30 a. m., daily, and at 3:30 p. m., daily  
(except Sundays).  
**OAKLAND BRANCH.**—LEAVE SAN FRANCISCO, 6:50,  
8:40, 9:10, 10:20 and 11:10 a. m., 12:00, 1:30, 4:00, 5:15, 8:30,  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
LEAVE BROOKLYN, 5:15, 6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.  
LEAVE OAKLAND, 5:25, 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

**ALAMEDA BRANCH.**—LEAVE SAN FRANCISCO, 7:20, 9:00,  
and 11:55 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:55 and  
5:30 to Fruit Vale only).  
LEAVE FRUIT VALE, 1:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
LEAVE FRUIT VALE, 5:25, 6:40, 7:50, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.

\*Trains do not run Sundays.  
**T. H. GOODMAN,** **A. N. TOWNE,**  
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

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Running from Ogden, Utah, to Omaha, Nebraska—over  
one thousand miles. Making

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connection at Denver City with the Kansas Pacific R.R. to  
St. Louis and Southern and Atlantic Cities.

AT OMAHA, for Chicago, Eastern and other cities, with  
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Pacific; Burlington and Missouri River; St. Joseph and  
Council Bluffs Railroads.  
EXPRESS TRAINS RUN DAILY.—The U. P. R. R. use  
the vestibule patent air brake; Miller's patent truss  
platform and elastic car-coupler; and the most approved  
construction of care for the comfort and safety of passen-  
gers.

PULLMAN'S MOST MAGNIFICENT SILVER PALACE  
Sleeping Cars attached to express trains.

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61 Miles the shortest line

From Chicago to New York. Three daily lines of  
Pullman's Palaces day and Sleeping Cars,  
from Chicago  
to Pittsburgh,  
Harrisburg,  
Philadelphia  
and New York

WITHOUT CHANGE!  
With but one change to Baltimore, Hartford, Provi-  
dence, Springfield, New Haven, Worcester, Boston. And  
is the most direct route to Washington city.  
Express trains on this line are equipped with WEST-  
INGHOUSE PATENT AIR BRAKES.

### Boston and New England Passengers

will find this route especially desirable, as it gives them  
an opportunity of seeing the finest views among the  
Alleghany Mountains, besides visiting Pittsburgh, Phila-  
delphia, and New York without extra cost.

All New England Passengers holding through  
tickets will be transferred, with their baggage, to Rail  
and Boat connections in New York without change.  
Through Tickets via, this great short route for sale in  
San Francisco, at 422 California street, 208 Montgomery  
st., 306 Montgomery st., and at Ticket offices of Central  
Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne  
Denver and Omaha. Be sure your tickets read via,  
Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago  
routes.  
J. R. EKLINGER, Jr., Gen'l Agent,  
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## WE HAVE SENT HUNDREDS OF SINGLE WALTHAM WATCHES

To the Pacific Coast  
BY MAIL AND EXPRESS,  
And in every case with satisfaction to the purchaser.

The Prices are now all Reduced!  
SOLID SILVER HUNTING WATCHES as low as \$15.  
SOLID GOLD HUNTING WATCHES as low as \$65.

Our Prices are all in Greenbacks, and we deal in none  
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Every one who wants a Watch or feels a desire to be  
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place, however remote, without any risk to the pur-  
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We send any Watch you order, and let you examine it  
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have first sent for the Prices List, and when you write  
please mention the SCIENTIFIC PRESS.  
Address in full,

**HOWARD & CO.,**  
Watchmakers and Jewelers,  
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We have a full stock of extra heavy Cases, such as 4,  
5, 6 and 8 oz., always on hand, and can fill all orders  
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**E. J. FRASER, M.D.,**  
SURGEON,  
No. 108 Stockton street, S. F., Cal.



## Irrigation in Yolo.

We were at Woodland last week, and witnessed with our own eyes the wonderful effects of water upon the grain crops in that vicinity. We had been told of the sharp lines of demarkation between adjoining fields, otherwise in all respects alike—one having received the benefits of a "flooding," while the other had been left to drink only what nature had supplied them with; but seeing is believing. Many fields of wheat that did not receive the water until so late that all seemed nearly dead—all the lower leaves being sunburned and crisped—have come forward since the irrigation, and will yield from twenty to thirty bushels to the acre.

So fields of alfalfa that were pastured with sheep until the 20th of April, so close that scarcely a green leaf could be seen—the sheep being then taken off and the water turned on—are now covered with a most luxurious growth of clover, standing as thick as it can be, and from three to four feet high. The clover is just coming into blossom, and will yield from four to five tons and a half of good hay to the acre with a growth of only three months. The same ground will furnish another good crop for seed, or will give good pasture all the balance of the season.

So much are the farmers of Yolo county impressed with the benefits of irrigation that they are preparing to increase and lengthen their ditches, by tapping Cache creek higher up in the cañon, so as to run the water over almost the entire surface of the land in Yolo county.

In conversation with those who have had the longest experience in irrigation, we find they all agree that for grain crops the land should be flooded in the winter season. That with a thorough soaking then, the very best of crops can be secured with almost a positive certainty; and this without any injurious effect on the sanitary condition of the country. They will irrigate their garden vegetables and summer crops later in the season, and thus secure the year round all the substantial and luxuries of rural life.

Had the farmers of Yolo county used all the facilities for irrigation which they might have done the past winter, the crops of this season would have netted them a thousand dollars for each dollar they will now bring them.

In striking contrast to the dried up grain fields we noticed that the vineyards through this section of the country are making a most luxuriant growth, and promise an extraordinary yield of luscious fruit. No irrigation is necessary for vineyards of bearing age, even in the driest of seasons.

We noticed that some of the vineyardists had used the pruning knife most too freely, of late, lopping off too much of the young canes. Experience will teach them that it is better to use the thumb and finger in pinching off the tender ends of these canes, earlier in the season, than to use the knife so freely now. The latter process takes off too many of the full grown leaves, and thus destroys the lungs of the plant, and exposes the tender fruit to the direct rays of the mid summer sun; while the former would have increased the growth of those same leaves, and thus added to the power of the vine to mature its fruit in greater perfection—the leaves at the same time affording the fruit the necessary protection from the burning sun.

**SPECIAL PREMIUMS.**—We notice that offers of special premiums for specific objects not considered by the State Agricultural Society, are still being announced in the Oregon papers. These offers come from public spirited citizens, who thus testify to their earnestness in the agricultural progress of their State. We are curious to see a full list of these premiums, and if it was before us might be provoked to publish it as an incentive to a similar public spirited action on the part of the people of California.

## New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

**OREANA MILLING, SMELTING AND REFINING Co.** Oreana, Humboldt Co., Nev.—June 24. Capital stock, \$1,000,000 in 20,000 shares. Trustees: B. F. Tuttle, A. B. Paul, F. B. Wongard, W. H. Tuttle and H. A. Harmon.

**SUNBEAM G. AND S. M. Co.** Bingham Canyon Utah.—June 24. Capital stock \$220,000 in 2,100 shares. Trustees: O. M. Hall, G. T. Babcock, W. E. Miller, J. Regensherger and H. Palmer.

**LA GRANGE DITCH AND HYDRAULIC M. Co.**—June 29. Capital stock, \$5,000,000 in 50,000 shares. Trustees: D. Taft, W. F. Babcock, B. M. Hartshorne, E. Green and R. E. Brewster.

**ALTA WATER Co.**—July 6. Object, to take the waters of the North and South forks of the American river, the North fork of the Middle fork of the American river, the tributaries of the Truckee river and conduct them to San Francisco. Capital stock \$1,000,000 in 1,000 shares. Trustees: A. W. Von Schmidt, J. Trench, R. Samson, G. H. Eusign and C. W. H. Concy.

**SOUTH CHARIOT M. Co.** Cwyhee Co., Idaho. July 10. Capital stock, \$2,000,000 in 20,000 shares. Trustees: Hill Beachey, G. W. Grayson, C. E. McLane, G. Hearst and M. Livingston.

## Meetings and Elections, Etc.

**MAMMOTH S. M. Co.**—June 5. Trustees: S. Linkton, W. F. Sime, J. Sime, G. Congdon, O. V. Sawyer, F. G. Berry and I. Livingston.

**CROWN POINT M. Co.**—June 6. Trustees: J. D. Fry (President), A. Hayward, R. Sherwood, J. A. Pritchard and B. Peart. Secretary, C. E. Elliot; Superintendent, J. P. Jones.

**IMPERIAL S. M. Co.**—June 27. Trustees: A. K. P. Harmon, T. Bell, J. D. Fry, H. C. Kibbe, W. Norris, J. H. Robinson, A. Bull.

**MAHOGANY G. AND S. M. Co.**—June 28. Trustees: O. H. Bogart (President), M. J. McDonald, T. G. Owens, M. Herman and A. P. Minear. Secretary, C. M. Richardson.

**POCAHONTAS G. M. Co.**—Trustees: L. A. Booth (President), J. Barton, J. Sedgely, J. O. Earle and O. G. Stiles. Secretary, D. A. Jennings.

**OPHIR C., S. AND G. Co.** Trustees: O. H. Bogart, H. C. Swain, C. E. Gibbs, C. F. Brown and W. J. Kip Jr. Secretary R. G. Brush.

**CHOLLAR-POTOSI M. Co.**—July 10. Trustees: A. K. P. Harmon (President), J. D. Fry, W. Norris, A. Bull, J. H. Robinson, H. C. Kibbe and J. Freeborn. Secretary, W. E. Dean; Superintendent, I. L. Requa.

**THE SAN JOAQUIN CANAL.**—Antioch Ledger, July 15. The Friedlander and Bessley Cos. have consolidated. Work is prosecuted on the so-called King's River and San Joaquin Canal. Work has been commenced at the mouth of Fresno Slough, at the confluence of the San Joaquin, 100 miles above Ellis. From here they strike to the foot-hills which will be followed to Antioch. The canal will have an average width of 45 feet. Some 300 teams are already employed.

## Our Printed Mail List.

Subscribers will notice that their names are printed on colored paper and pasted upon each copy of the Press. This is done by machinery, to expedite the issue of our paper, the regular edition of which has become too large to be convenient to send out by the old method of writing the names. The figures found on the right of the pasted slips represent the date to which the subscriber has paid. For instance, 21sep70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4jy72, that he has paid to the 4th of January, 1872; 4j10, to the 4th of July, 1870. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or addresses of subscribers occur at any time an early notice will secure their immediate correction.

## Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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W. H. MURRAY—Colorado Territory.  
M. W. LEVY—Denver, Colorado.  
M. B. STARR—Pacific Coast.  
THOS. FOYER—California.  
WM. J. CLARK—California.  
L. P. MCCARTY—California.  
E. P. RICKS—California and Oregon.  
A. C. KNOX, City Soliciting and Collecting Agent.

**Complete Volumes of the Scientific Press** from January, 1864, can be had at this office at \$3 per volume. Bound in cloth, \$5. A limited number only on hand.

READERS will favor ourselves and advertisers by mentioning the fact when they obtain information from our columns.

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A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at this office.

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Subscribers for this paper can obtain Koch's Patent Elastic Newspaper File Holder and Binder for \$1.50—containing gilt title of the paper on the cover. It preserves the papers completely and in such shape that they may be quickly fastened and returned in book form at the end of the volume, and the binder (which is very durable) used continuously for subsequent volumes. Postage 35 cts. extra. It can be used for Harper's Weekly and other papers of similar size.

**THE Scientific Press**, of San Francisco, Cal., is now illustrating the beautiful scenery on the line of the Central and Union Pacific Railroads. This journal is of the same size and form as the *Scientific American*, and is one of the most valuable publications on the Pacific Coast. Published weekly by Dewey & Co., 414 Clay street. Terms, \$4 per annum.—*Iron World and Manufacturer, Pittsburg, Pa.*

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium.

**TO THE MINING INTEREST.**—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanic's Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and capital to our mines. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanic's Institute, care J. H. GILMORE, San Francisco.

WOODLAND, July 14, 1871.

DEWEY & Co., Gents: I received the patent paper on my improved wagon all right, and I return thanks for the promptness with which you pushed it through.

Respectfully, C. ELLIOTT.

**PATENT BROKERS.**—Inventors having valuable patents and needing reliable assistance in selling them should consult WEISTER & Co., No. 17, New Montgomery street, under the Grand Hotel, San Francisco.

**\$5 TO \$20 PER DAY AND NO RISK.**—Do you want a situation as salesmen at or near home to introduce our new 7-Strand White Wire Clothes Lines, to last for ever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 16 Dearborn street, Chicago, Ill.

**LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine** against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired.

"I CAN'T SEE IT" say many. But if you really wish to see with a good strong sight you should go to the store of C. MULLER, No. 205 Montgomery street, and look through his glasses.

**CONTINENTAL Life Insurance Co.**, 302 Montgomery street, corner of Pine.

## A CHEAP AND DESIRABLE BOOK.



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AND OVER 40 INTERESTING ENGRAVINGS. 225 pages. In pamphlet, 75 cts.; cloth bound, \$1.00.

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## HUGHES' PATENT REMOVABLE GLOBE LANTERN.



Since the time when King Alfred made the first lantern by surrounding a candle with a transparent casing of horn, this class of appliances has been one of the greatest utility and most extended use. Among the latest improvements in its construction is that illustrated in the accompanying engravings, and designed to secure the threefold object of providing for the easy cleansing of the glass portion, the secure retention of the lamp in place upon the lower part of the lantern, and the affixing of the hall to the top of the lantern in a durable and efficient manner. The base of the lantern is provided with the usual detachable lamp, and at one side has hinged to its upper edge a wire frame designed to carry and protect the glass portion or body of the lantern, and at the other end of which is the cylindrical top, perforated in the ordinary manner to permit the escape of the products of combustion from the lamp. Arranged at that side of the base opposite the hinge is an angular spring-catch so applied as to catch over the annular lower rim of the wire frame, and in conjunction with the hinge, to hold the said frame firmly in place upon the base as required when the lantern is in use.

This Lantern is offered as

The Best and Most Desirable in Use,

all things considered. Its price is reasonable, and when once tried no other will be accepted.

Individuals, Dealers, Railroad Companies, and all persons and institutions about to purchase Lanterns, should inquire for this kind; and if not for sale in your locality, address the inventor for circular of full description, price list, etc.

Patented August 10 and December 28, 1869, by

Address 1811 Sidney street, East Birmingham, Pa.

JOHN HUGHES.

3723-24 amfm



## Mining and Other Companies.

During the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can revise advertisements.

## Eagle Quicksilver Mining Company—Location of works, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of June, 1871, an assessment of twenty dollars per share was levied upon the mines of said Company, payable immediately in gold coin of the United States, to the Secretary, at his office, Room No. 3, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Wednesday, the 9th day of August, 1871, shall be deemed delinquent, and will be duly advertised August 12th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 3, No. 302 Montgomery street, San Francisco, California.

## Highland Silver Mining Company—Location of works, Railroad District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 13th day of July, 1871, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States coin, to the Secretary, at No. 28 Merchants' Exchange, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 21st day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILCOX, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. July 15-1d

## Marcelina Silver Mining Company.—Location of works, Eureka District, Lander County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 24th day of June, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
P P Cunningham.....	21	200	\$ 40 00
P P Cunningham.....	22	200	40 00
P P Cunningham.....	23	100	20 00
Chas W Dungan.....	25	50	10 00
Chas Elliott.....	26	187	37 40
Chas F Eaton.....	27	500	100 00
Thos Kittle.....	24	130	26 00
Jas M Maguire.....	26	20	4 00
Daniel McLeod.....	27	50	10 00
J H Nelson.....	41	500	100 00
O C Palmer.....	29	300	60 00
O C Palmer.....	30	100	20 00
O C Palmer.....	31	200	40 00
O C Palmer.....	32	200	40 00
O C Palmer.....	33	25	5 00
O C Palmer.....	34	25	5 00
O C Palmer.....	35	25	5 00
O C Palmer.....	36	25	5 00
O C Palmer.....	37	25	5 00
O C Palmer.....	38	25	5 00
O C Palmer.....	39	25	5 00
O C Palmer.....	40	25	5 00
O C Palmer.....	41	25	5 00
O C Palmer.....	42	25	5 00
O C Palmer.....	43	25	5 00
O C Palmer.....	44	25	5 00
O C Palmer.....	45	25	5 00
O C Palmer.....	46	25	5 00
O C Palmer.....	47	25	5 00
O C Palmer.....	48	25	5 00
O C Palmer.....	49	25	5 00
O C Palmer.....	50	25	5 00
O C Palmer.....	51	25	5 00
O C Palmer.....	52	25	5 00
O C Palmer.....	53	25	5 00
O C Palmer.....	54	25	5 00
O C Palmer.....	55	25	5 00
O C Palmer.....	56	25	5 00
O C Palmer.....	57	25	5 00
O C Palmer.....	58	25	5 00
O C Palmer.....	59	25	5 00
O C Palmer.....	60	25	5 00
O C Palmer.....	61	25	5 00
O C Palmer.....	62	25	5 00
O C Palmer.....	63	25	5 00
O C Palmer.....	64	25	5 00
O C Palmer.....	65	25	5 00
O C Palmer.....	66	25	5 00
O C Palmer.....	67	25	5 00
O C Palmer.....	68	25	5 00
O C Palmer.....	69	25	5 00
O C Palmer.....	70	25	5 00
O C Palmer.....	71	25	5 00
O C Palmer.....	72	25	5 00
O C Palmer.....	73	25	5 00
O C Palmer.....	74	25	5 00
O C Palmer.....	75	25	5 00
O C Palmer.....	76	25	5 00
O C Palmer.....	77	25	5 00
O C Palmer.....	78	25	5 00
O C Palmer.....	79	25	5 00
O C Palmer.....	80	25	5 00
O C Palmer.....	81	25	5 00
O C Palmer.....	82	25	5 00
O C Palmer.....	83	25	5 00
O C Palmer.....	84	25	5 00
O C Palmer.....	85	25	5 00
O C Palmer.....	86	25	5 00
O C Palmer.....	87	25	5 00
O C Palmer.....	88	25	5 00
O C Palmer.....	89	25	5 00
O C Palmer.....	90	25	5 00
O C Palmer.....	91	25	5 00
O C Palmer.....	92	25	5 00
O C Palmer.....	93	25	5 00
O C Palmer.....	94	25	5 00
O C Palmer.....	95	25	5 00
O C Palmer.....	96	25	5 00
O C Palmer.....	97	25	5 00
O C Palmer.....	98	25	5 00
O C Palmer.....	99	25	5 00
O C Palmer.....	100	25	5 00

CHAS. E. ELLIOT, Secretary.  
Office, Room 21, Hayward's Building 419 California Street, San Francisco, Cal. July 15-2t

## Mountain City Mining Company—Location of mine, Copo District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 24th day of June, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Beat, John T.....	61	400	\$100 00
Enright, John T.....	62	250	62 50
Greek, H J.....	63	100	25 00
Hobson, W M C.....	23	50	12 50
Hobson, W M C.....	24	2	50 00
Hobson, W M C.....	25	10	2 50
Hobson, W M C.....	26	10	2 50
Read, Francis.....	63	400	100 00
Sharp, Wm H.....	70	900	225 00
Titus, H W.....	49	400	100 00
Titus, H W.....	50	200	50 00
Titus, H W.....	51	200	50 00
Titus, H W.....	52	100	25 00

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of June, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales-room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on the 8th day of August, 1871, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.  
Office, 206 Front street, San Francisco, Cal. July 22-2w

## Office Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice.—The annual meeting of stockholders of the above named company, for the purpose of electing Trustees and transacting any necessary business, will be held at the office of the company, No. 31 New Merchants' Exchange (third floor), California street, San Francisco, on Monday, the 31st day of July, 1871, at 3 o'clock P. M.

J. M. BUFFINGTON, Secretary.  
July 22-2w

## Taylor Mill and Mining Company—Location of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of July, 1871, an assessment of ten (10) cents per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 529 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 15th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

SAM'L S. MURFEY, Secretary.  
Office, 529 Montgomery street, over Sather & Co's Bank, San Francisco, Cal. July 15-1d

# BERRY & PLACE,

## MACHINERY AND SUPPLIES.

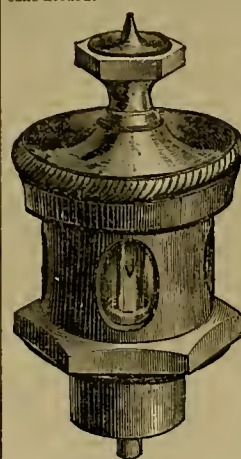
Importers and Dealers in  
SAN FRANCISCO, CAL.  
Sole Agents in Pacific States for Sale of

Blake's Patent Steam Pumps,  
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Hardy's Portable Drillers,  
Dreyfus' Patent Self-Oilers,  
Gardner's Safety Stop Governor,  
Page's Belting, Etc., Etc.

We keep in stock the above, with a large variety of other Machinery and Small Tools.

## Dreyfus' Patent Self-Oilers and Cylinder Cups.

A saving in oil of 75 to 95 per cent, guaranteed. No trouble of "oiling up" No waste of oil! No oil cans needed!



### NATHAN & DREYFUS

#### SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of  
75 PER CENT OF OIL.

They are composed of a transparent Glass Cap, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.

Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

No testimonials are printed, but ask any one who has them what they think of them. Be sure you get Dreyfus'. Send for Circular and Price List to BERRY & PLACE, San Francisco.

## GARDNER &amp; ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting of the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. Thus we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE; and either BLACK OR FINISH, as you may require. Send for Price List to BERRY & PLACE, San Francisco.

## Nathan &amp; Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages: First—Nothing but clean oil or tallow is admitted into the Cylinder; no lime or sediment of any kind. Second—Its great economy of both tallow and fuel. Third—It is self-acting, and supplies the lubricating material only while the Engine is in motion. Fourth—Its certainty and regularity of feeding, and increase of the power of the Engine.

The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be instantly blown out at the exhaust (as must necessarily be the case), this Cup, by its peculiar action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the Cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

For further information, or Price Lists, address BERRY & PLACE, Importers Machinery and Mill Supplies, Warerooms, 112 and 114 California street, San Francisco.

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## DIMENSION

## PLANERS.

## PLANERS.

## PLANERS AND MATCHERS,

With Patent Expansion Feed Oars and other Improvements. Also, every description of the most improved

## Patent Wood-Working Machinery,

Embraising Mortising, Sash and Moulding, Slat and Door Tenoning, Boring, Shaping, Scroll and Improved Band Sawing, Wiring, Mitering, Cut-off Sawing, Wood-Turning, Side-Jointing, Re-sawing Machine, and in fact every description of Labor-saving Machinery for Saw-Mills, Sash and Door Factories, etc.

A large assortment of Planer Knives, Saw Arbors, Knife Grinders, Moulding Heads, Mortising Chisels, Matcher Saws, Band-Saw Blades, Saw Gauges, Door Clamps, Leather Belting, Sash Leather, Belt Studs, etc., etc., for sale at Extra Prices, at the Machinery Depot

2122-tf

BERRY & PLACE, 112 and 114 California St., San Francisco.

## Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 30th day of May, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Adrian, Mrs E.....	135	100	\$60 00
Adrian, Mrs E.....	136	12	7 20
Bromley, John.....	249	1	60
Blake, H H.....	196	5 1/2	3 30
Blake, H H.....	204	7 1/2	40 50
Blake, H H.....	214	27 1/2	16 50
Blake, H H.....	301	50	30 00
Choate, N.....	250	1	60
Higgins, Chas.....	251	1	60
Hamilton, Jo.....	252	1	60
Hamilton, Jo.....	198	5 1/2	3 30
Janison, S.....	253	1	60
Janison, S.....	254	1/2	30
Kip Jr, W J.....	237	600	300 00
Leahy, Joseph.....	235	3	1 80
Leahy, John.....	236	1	60
Miller, W E.....	187	32	19 20
Miller, W E.....	188	74	44 40
McMurray, Mrs E.....	257	1	60
Patton, James.....	258	1	60
Patton, James.....	259	5	3 00
Patton, James.....	260	1	60
Ringer, John.....	261	1	60
Ringer, John.....	262	1	60
Sickles, F.....	263	1	60
Swain, H C.....	294	50	30 00
Swain, H C.....	295	50	30 00
Swain, Wm B.....	9	5	3 00
Swain, Wm B.....	8	24	14 40
Shofer, John.....	264	1	60
Strecher, Chas.....	265	1	60

And in accordance with law and an order of the Board of Trustees, made on the 30th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, San Francisco, California, on Saturday, the 24th day of July, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. O. BRUSH, Secretary.  
Office, No. 314 California street, San Francisco, Cal. July 8-3t

## Pinto Mining Company, Location of Works, Silverado, Pinto Mining District, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied May 24th, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Leopold Jacob.....	1	50	\$ 7 50
Leopold Jacob.....	from 2 to 32	50	193 75
A H Ward, Jr.....	111	805	100 62
Henry G Langley.....	171	1610	201 25
Elliot J Moore.....	178	1,610	201 33
Robert E Johnson.....	218	32 1/2	40 21
Eugenius Olsen.....	212	10,000	1,250 00
D B Arrowsmith.....	not issued	1,610	201 25

And in accordance with law, and an order of the Board of Trustees, made on the 24th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the sales-room of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the 17th day of July, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.  
Office, 426 Montgomery street, San Francisco, Cal. July 22-3t

PINTO MINING COMPANY.—The above sale is postponed until Wednesday, the 16th day of August, 1871, at the same time and place. By order of the Board of Trustees.  
D. B. ARROWSMITH, Secretary.



Sects and Creeds differ, but there are no dissenters from the general principle, that a great medicine is a great blessing. We have many of these blessings, but among them all, in the province to which it belongs, no greater than

Tarrant's Effervescent Seltzer Aperient. A column would not suffice to enumerate the ailments for which it is prescribed by physicians of the highest standing. It does not belong to the class exclusively termed patent medicines, but is an article based on scientific analysis, and will stand the test of the sharpest and most rigid medical criticism as a cathartic, a stomachic, an anti-febrile preparation, and an admirable remedy for all bilious complaints. LET THERE BE NO MISTAKE. SECURE THE GENUINE ARTICLE ONLY. SOLD BY ALL DRUGGISTS.



First Premiums awarded by American Institute, N. Y. MICROSCOPES.

Illustrated Price List sent free. Magic Lanterns and Stereoscopes. Catalogue, priced and illustrated, sent free. McALLISTER, Optician, 49 Nassau street, New York. 3v23-1y

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To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling the purchaser to the class exclusively termed patent medicines, but is an article based on scientific analysis, and will stand the test of the sharpest and most rigid medical criticism as a cathartic, a stomachic, an anti-febrile preparation, and an admirable remedy for all bilious complaints. LET THERE BE NO MISTAKE. SECURE THE GENUINE ARTICLE ONLY. SOLD BY ALL DRUGGISTS.

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E. J. FRASER, M. D.,

SURGEON,

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**PACIFIC IRON WORKS,**

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Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.**FULTON****Foundry and Iron Works.**

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MANUFACTURERS OF

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Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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GREATLY REDUCED RATES.

**Miners' Foundry & Machine Works,**235 TO 245 FIRST STREET,  
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This Establishment is now working upon the CO-OPERATIVE PLAN,

And are thereby enabled to manufacture MACHINERY, CASTINGS &amp; BOILERS AT EASTERN PRICES, And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

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Established for the Manufacture of RAILROAD AND OTHER IRON —AND— Every Variety of Shafting,

Embracing ALL SIZES of Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

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**HAMMERED IRON**

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.  
The highest price paid for Scrap Iron 8v143m

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Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

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PIPE of all sizes, of a very superior quality, is now being made at the

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FIRST PREMIUM

American Institute, 1867 and 1870.

CHARLES B. HARDICK,

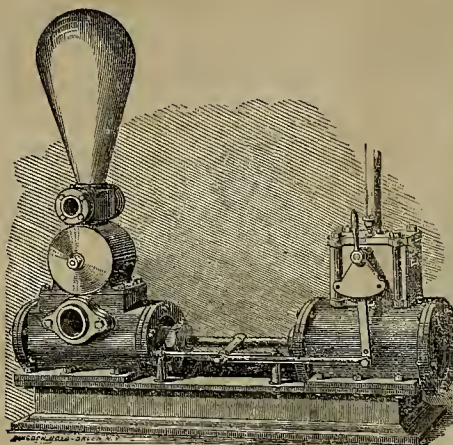
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Hardick's Patent Double-Acting Steam Pump and Fire Engine.

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22v26t-cow



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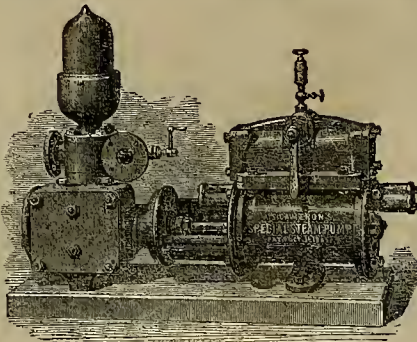
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**VULCAN IRON WORKS,**

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**ATKINS & BURGESS,**

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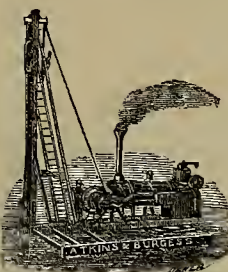
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GEARING AND

**GENERAL MACHINERY****CASTINGS**

MADE TO ORDER.



Jobbing Promptly Attended to. 24v22-3m

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Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. &amp; L. were the PATENTEE'S AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

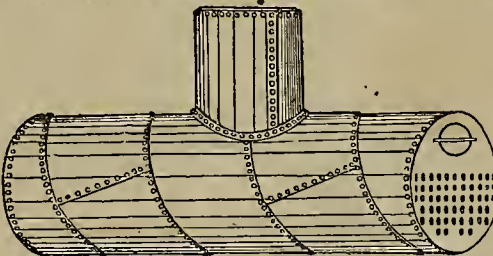
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of all descriptions.

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23v22-3m

Sheet Iron Work

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**THE RISDON****Iron and Locomotive Works.**INCORPORATED.....APRIL 30, 1868  
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Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

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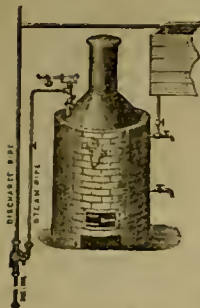
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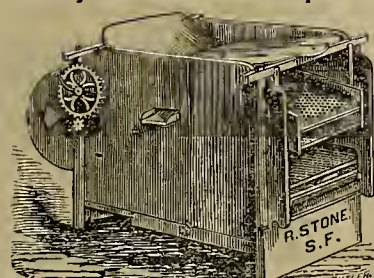
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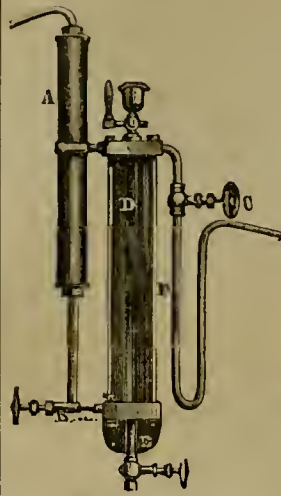
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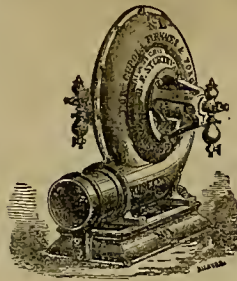
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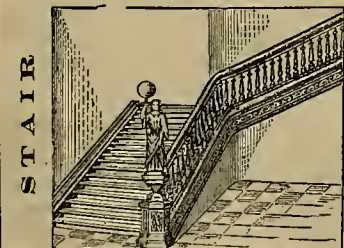
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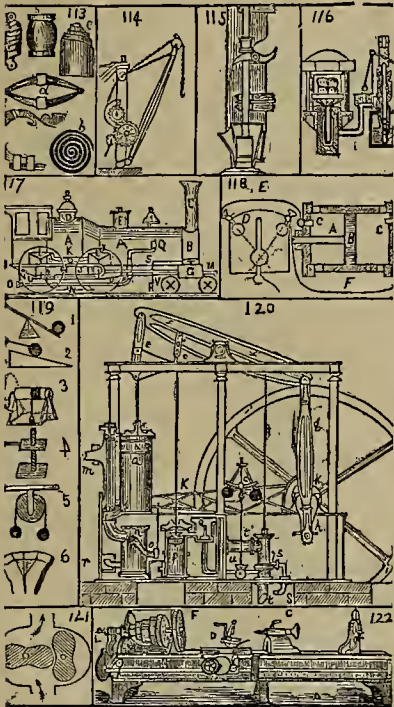


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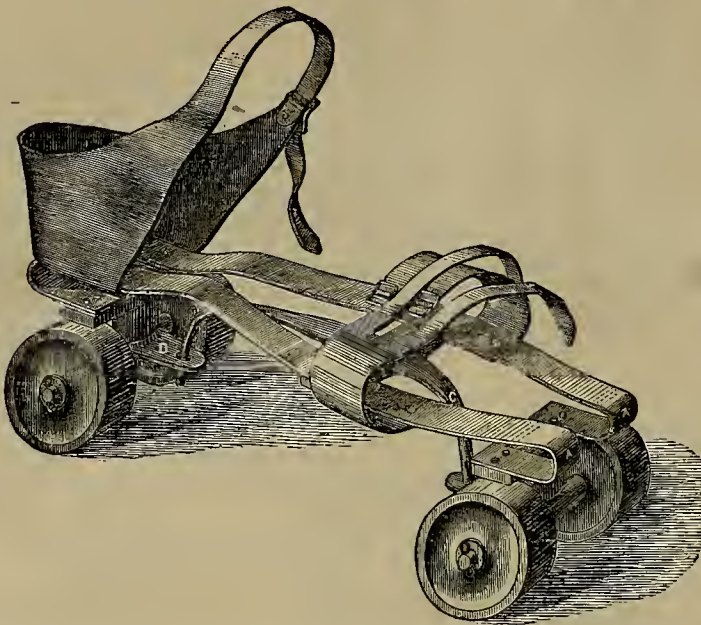
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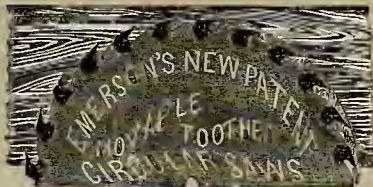
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# SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
**Mining, Mechanic Arts and Inventions.**

BY DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, JULY 29, 1871.

VOLUME XXIII.  
Number 4.

## Improvements in Sewing Machines.

We lately had an opportunity of examining some important improvements in the sewing machine. The device, which we saw adapted to Howe's large cylinder machine for sewing leather, is the invention of Mr. H. W. Hanna, of Petaluma, and its description will be found of interest to many of our readers.

The invention consists principally of the following points. The shuttle is curved upwards on its lower side to a certain distance from its point, and the driving mechanism is so arranged that the shuttle is drawn back the length of this curve while the needle is rising out of the work. The result is that there is no extra tension on the thread during this time, but sufficient slack is given to correspond to the thickness of the work. In the common form of the machine, this slack must be gained by a corresponding stretching of the thread, and if the thread is not elastic enough for this, it must break. In the improved form there is no such extra strain on the thread and consequently no liability to break at this period.

Another point must be noted. In the common form, there is a space left between the shuttle and one side of the shuttle guide for the insertion of the shuttle thread, but the shape of this space is such that occasionally the thread can kink and get between the shuttle and guide, in which case it is broken by the forward motion of the shuttle. In the improved form, a little flange is added to the side of the guide in such a way that, as the shuttle moves and slack is given to the thread, this last cannot curl up into this space; and consequently this trouble is obviated.

These are the principal points of the invention, and it will be seen that they are of very considerable importance in using the sewing machine, obviating many vexatious troubles to the operator. Several indirect advantages arise from the improvements, and as these can be adapted to other machines of the kind, they are certainly worthy of careful investigation. Steps have been taken to secure the rights of the inventor through the SCIENTIFIC PRESS Patent Agency.

**CARBOLIZED COMBINATION HOSE.**—This hose will soon be tested by the City Fire Department. It is said to be almost exclusively used by the fire departments of New York and Brooklyn, to have given such satisfaction at Marysville that it is to be adapted more extensively there, and to have been most successfully used by the C. P. R. R., the C. Steam Navigation Co., the Cal. Powder works and the Blue Gravel M. Co.

**THE RIVERSIDE COLONY** has a tract of 30,000 acres in the Santa Anna valley, San Bernardino county, where some 50 families are now settled. A ditch, 10 miles long, has been completed and another is being constructed. The scheme originated in Boston.

## The Bavarian Breech-loading Rifle.

The London *Mechanics' Magazine* has given an illustration and description of this arm, called the Werder rifle, which did good execution in the late French campaign. As a matter of interest to many of our readers, we re-publish this, with the cuts for which we are indebted to the *Amer. Artisan*.

The breech-block of this rifle is something like that of the English Snider, only much shorter; it is hinged on lugs at one side, so that it can be lifted and thrown

stem projects is provided with a lip, and the nose of the hammer in coming down upon the striker engages itself thereon, and holds the block secure while the explosion takes place.

The construction of the rifle will be well understood by referring to the engravings, where Fig. 1 shows the breech portions, with the block thrown over to expose the bore ready to receive a cartridge, while Fig. 2 shows the block closed and the hammer on the nipple. The other portions of the arm are of the ordinary construction. It will be seen that the back force of the ex-

Fig. 1.

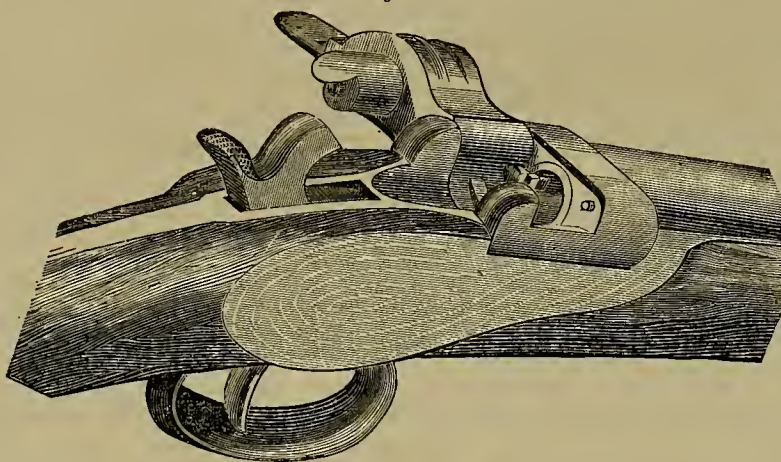
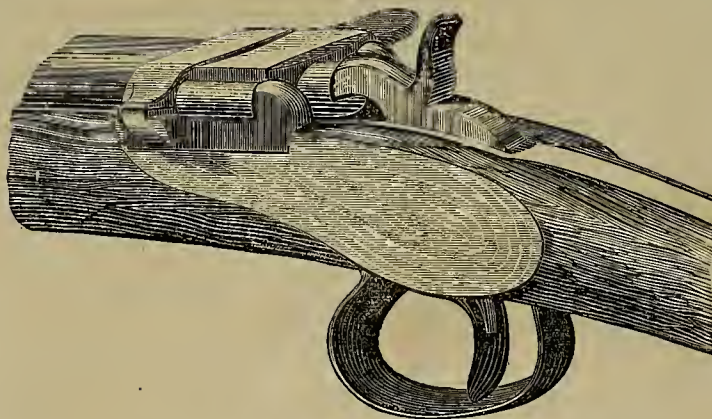


Fig. 2.



THE BAVARIAN BREECH-LOADING RIFLE.

over to open the breech by means of a lump projecting from the other. The hammer rises through an opening in the top of the tang, similar to the English Snider, and acts upon the stem of the striker at the center of the block to ignite the charge. There is a projection on the extractor, which is struck sharply by the lip of the block when the block is thrown over, so that the empty case is withdrawn from the chamber.

In order to prevent the escape of gas at the breech at the time of the explosion, the bottom face of the block is grooved, which grooves take over the ribs on the top face of the box, and thus divert the gases from the face of the soldier, should there be an escape from a faulty cartridge.

The nipple through which the striker

plosion is received by the two cheeks against which the block rests when closed down.

**WATER ENTERPRISE.**—The Virginia City *Enterprise*, of July 18th, says that the Virginia & Gold Hill Water Co. are making the final survey for bringing water to Virginia City from streams emptying into Lake Tahoe. The total distance is 51 miles, 35 miles of flume, 8 miles of iron pipe, and then 8 miles of flume again. Eight miles of the pipe, from the foothills of the Sierra to the range on which Virginia City stands, will be of cast iron, of an internal diameter of 12 inches. The greatest pressure is given as 1,660 feet, which is enormous.

The borax consumption of the world is about 11,000 tons annually.

## Swamp and Overflowed Lands.

Application was made last June to the U. S. Land Commissioner to have action taken for examining the segregation maps and surveys of swamp and overflowed lands made by the State of California, in order to have township-plats constructed and approved by the General Land Office in accordance with the Act of July 23, 1866, to "quiet land titles in California." Directions were issued, in accordance with the Act, in September, 1866, but since then the State has heard nothing of the matter. The General Land Commissioner in reply to the application, has sent, under date of July 7th, to the State Surveyor General and to the U. S. Surveyor General at this city, segregation maps of such lands in the counties of Colusa, Alameda, Monterey, Santa Clara, Yolo, San Joaquin, Lake, Humboldt, Sonoma, Napa, Sacramento, Sutter, Placer and Solano. These were found amongst the files of his office without any data as to the time or purpose of transmission.

If these conform to the system of surveys adopted by the U. S., township-plats are to be constructed, approved and forwarded to the General Land Office for approval. If discrepancies occur, they are to be noted on the official plats forwarded. If U. S. surveys have not been made in any places, such are ordered made within one year.

## The Santa Cruz Railroad.

The final report of the Chief Engineer (Mr. W. J. Lewis) of the Santa Cruz & San José R. R. has been published. A line was run from San José (at the intersection of San Carlos street and the Southern Pacific in Front street), to near Los Gatos to the Los Gatos Creek, thence to Ten Mile House, along the tollroad through the cañon, and through Lexington to near the Forest House. It then runs near the channel of Los Gatos creek and transversely up the ridge to a tunnel at Taylor's Pass, then down to Soquel and to the landing at Santa Cruz. The projected tunnel and cut are 2,000 feet in length, through soft sand rock. The total length of the line is 38.12 miles; the maximum grade, 132 feet; the minimum radius, 230 feet, except at one point where a curve of 130 feet would save considerable expense.

The cost of the road bed and superstructure is estimated at \$450,000, or about \$11,805 per mile. This may be reduced considerably. By adopting a higher grade, the tunnel at Taylor's Pass may be avoided. The object of the survey was to ascertain the practicability of the route for a narrow gauge road. This is demonstrated, and also the fact that the cost of road bed and superstructure of the narrow gauge will be less than that of the superstructure alone of the 4 ft. 8½ in. gauge.

THE UTAH SOUTHERN R. R. is located and let for the first 20 miles. Track is laid as far as Little Cottonwood.



## MECHANICAL PROGRESS.

**STEAM TYPE-COMPOSING MACHINE.**—The *Mechanics' Magazine*, July 1st, says that A. Mackie, of the *Warrington Guardian*, has invented a machine which really does efficiently the work of the compositor. It consists of a perforating and a type-setting machine. The former is a small apparatus with 16 finger keys, which prepares strips of paper which govern the type-setter. The strips are about 2 in. wide, perforated with a central, continuous row of equidistant holes, on each side of which are eight other rows, not continuous but intermittent. These strips are to the type-setter what the Jacquard cards are to the loom. The rate of production with one perforating machine is about 10,000 letters per hour. The composing machine is a circular metal framing, having around its periphery 29 boxes or "pockets," each divided into 8 compartments, 7 for letters and 1 for spaces. A lip at the bottom prevents the type from falling out, but room is left for the insertion of the "pickpocket." Inside the circle of pockets another wheel revolves, carrying a number of type-extractors, or "pickpockets," arranged around its periphery. Each pickpocket has a receiving table, in which are formed 8 holes through which pins are caused to rise. These tables are hinged and can be lowered so that any type on them will clear the pockets, or they can be raised horizontally to pass close under the pockets. If when thus raised any of the pins project above the face of the table, each pin, passing under a pocket, will draw out a type from that division under which it passes. Such types fall on the receiving table, which is then depressed and carries the types to the point of delivery. The perforated paper strip is fed into the machine and fed forward by pins fitting the central row of holes. Sixteen levers with pegs are always seeking to enter the other perforations. Two of the first eight levers find the perforations which set the pickpockets, so that they will act on the proper pocket. The second eight levers find holes according to the word wanted, so that a pickpocket can take type out of all the 8 divisions of any pocket simultaneously, when necessary. A certain method of arrangement is observed in placing the types in the pockets, and thus Mr. Mackie has been able to produce combinations by which he can withdraw from the pockets, each at a single operation, about 700 words or parts of words. We have thus a machine possessing the almost wonderful power of composing complete words at one operation. The types are discharged from the receiving tables, by proper devices, in a continuous stream into lengths of brass rule. Then manual labor removes them at times, divides them into lines, and justifies. The distribution of the letters into duplicates of the pockets is done by boys. The composing power of the machine is stated to be 12,000 letters per hour, equal to a column of the *Times* in minion, or small type. The machine has been operating for nearly a year for the *Guardian*, and is now used for the *Graphic*, and is highly praised.

**BALLOON COMPASS.**—The French astronomer, Janssen, has invented a compass for determining the course and speed of balloons. It is described in the *Comptes Rendus* of last February. It consists of a cylindrical metal case,  $3\frac{1}{2}$  to 4 inches in diameter, and the same in height, with a glass bottom and open at the top. Two small arms on branches rise from the upper end of the case and support between them a little metallic disk 10 to 12 in. above the glass bottom. This disk serves as an eye piece, having a small hole in it in the line of axis of the cylinder. Upon the glass bottom are engraved a number of concentric graduated circles, whose radii are so calculated as to be visible through the eye piece under angles of  $1^\circ$ ,  $2^\circ$ ,  $3^\circ$ , and  $10^\circ$ . Four diametrical lines divide the largest circle (the "great circle") at equal distances. The instrument is hung by a Cardan apparatus so as to insure verticality during observation. A compass needle is fitted to the glass bottom, a little eccentrically (to leave the vision unimpeded) and is provided with a small graduated circle, of which the needle's pivot is the center, so divided that the cord of  $180^\circ$  may be parallel to the line  $0^\circ$ — $180^\circ$  of the great circle. By looking at points on the earth through the eye piece, and by the aid of calculations, the course and speed of the balloon can be ascertained.

**AUTOMATIC OR FAST-SPEED TELEGRAPH.**—Prof. Wheatstone's apparatus consists of a perforator, a transmitter and a receptor. The perforator is an iron case with three keys struck down by the operator. These keys work with three punches which produce holes corresponding to dots, dashes and spaces in the strip. The transmitter consists of a clockwork which draws the prepared paper continuously forward by the teeth on the periphery of a spurwheel entering the central line of holes of the paper. The holes on the one side or the other represent the positions of positive or negative currents. Two small vertical pins move up and down underneath the paper strip, one under each row of holes. When a hole occurs, the pin rises through it and, by a connecting lever, suitable contact is made with the battery. When no hole occurs, the pin stops against the paper and no contact is given. The receptor is similar to the ink-recording Morse apparatus, but of somewhat finer arrangement and very light, thus allowing great sensibility and fast working.

The Siemen's system differs principally in providing the paper strip with a continuous line of holes previous to punching it with holes for giving currents, and in the current-holes being provided in the requisite groups by punches worked by a keyboard, so that the operator has only to press one key for each letter, instead of composing the letters of the elementary signals. The keyboard has as many keys as there are letters, figures and punctuation marks. The momentary touch of a key punches properly and advances the strip for the next punch. The transmitter is arranged either for magneto-electric or for galvanic currents. For the latter the contacts with the alternate holes are given by a special commutator of the form of a roller cut in balvics, which come together in saw-teeth and fit into one another without touching. The halves connect with the two poles of a battery, and as the holes in the paper strips occur at intervals corresponding to the breadth of the teeth, the contact spring or brush falling through a hole makes contacts with the alternate holes as the grouping of the signal requires. The receiving apparatus is a very delicate inkwriter, the cores of its electromagnets being made of rolls of sheet iron. *Mechanics' Magazine*.

**FERRIE'S SELF-COKING BLAST FURNACE.**—The one at the Monkland Iron Works is illustrated in *Engineering* of June 16. It is 83 ft. high, 18 ft. in diameter at the boshes and  $12\frac{1}{2}$  ft. at the top. The upper part for 20 ft. below the bell and cone space is divided into 4 compartments by vertical walls, resting on arches and radiating from the center. These walls and the circumferential walls are pierced with flues, into which is received a portion of the gases taken from the top. These gases are here ignited, receiving a supply of air through gratings in the external wall of the furnace. The temperature in the flues ranges from  $1500^\circ$  to  $1700^\circ$ . This effects a coking of the coal in the compartments, a driving off of all moisture in the ore, etc., and the expulsion of the carbonic acid out of the limestone. The materials fall from these compartments into the smelting zone. Very good results are reported. Mr. Ferrie claims a saving of nearly 1 ton coal to 1 ton of iron produced, and a saving of  $2\frac{1}{2}$  cwt. ore per ton of iron, at least in certain districts. The furnace runs regularly and produces good iron.

**THE BURDEN HORSE SHOE** patent has been extended. The machine turns out a shoe each second, of an average weight of 1 lb. One machine often uses  $10\frac{1}{2}$  tons of bar iron in 12 hours, equal to the work of at least 600 men. The average cost of making a horse shoe by hand is estimated at 16 to 20 cts. (exclusive of material); the average cost of the Burden shoe is  $8\frac{1}{2}$  to 5 cts. Since the introduction of the machine, 82,000 tons of iron have been used by it, and the sales have amounted to \$9,000,000,—a saving of \$18,000,000 to the public.—*Ex.*

**SLATE FOR ENGRAVING.**—The use of slate, instead of box-wood, for engraving is said to have been found both economical and efficient. The blocks are easily cut, will wear as well as electrotypes, furnish over 100,000 impressions without loss of detail, are not affected by oil or water, do not vary with the temperature, and do not warp.

**THE SUEZ CANAL** is regarded as definitely completed, having a depth of 26 ft. 8 in. throughout. M. de Lesseps is stated to have been negotiating with the Duke of Sutherland for additional capital. The financial results of the enterprise are not favorable.

## SCIENTIFIC PROGRESS.

**METALS PRECIPITATED FROM SOLUTIONS BY SULPHIDES—GOLD AND SILVER DEPOSITS.**—Mr. Daintree had observed that gold, when placed in a solution of its chloride undergoing decomposition by contact with organic matter, acts as a nucleus for the liberated gold. Copper, iron and arsenical pyrites, galena, zincblende, stibnite, wolfram and molybdenite also act thus as nuclei, but brown iron ore and quartz do not. Mr. Wm. Skeay, of the New Zealand Geological Survey, has been seeking an explanation of this. His results were given in a paper which has been published by the *Chemical News*. We condense: That gold should act as a nucleus for gold liberated from solution, is similar to the action of numerous other substances. The protoxide of iron in wolfram explains its action, as soluble proto-salts of iron reduce gold salts. The other cases are those of sulphides and arsenides. Experiments show that these have a reducing power on gold chloride. The presence of organic matter is no help, but rather a hindrance. Gold chloride was found to be reduced by contact with proto- and bi-sulphide of iron, ferro-sulphide and sub-sulphide of copper, sulphides of zinc, tin, molybdenum, lead, mercury, silver, antimony, bismuth, arsenic, platinum and gold; also by mispickel ( $\text{Fe As}_2 + \text{Fe S}_2$ ) and arsenide of silver. Cubical iron pyrites is rather slow in its action; antimony sulphide scarcely affects it at first, but rapidly after some hours. All these effects occur at common temperature, except with sulphide of bismuth. There is no reason to suppose that light has been concerned in these reactions.

The mode in which these effects were produced was by the oxidation of the metal and of the sulphur (arsenic) of the nuclei. Silver and platinum also, and possibly most or all of the metals of the platinum series, are found reducible in this way from their solutions in acids by metallic sulphides and arsenides. Thus, silver is reduced from its nitrate and acetate very readily by galena, copper pyrites and the inferior sulphides of iron and copper. From ammoniacal solutions, however, it is not reduced by any of these sulphides, not even when heated with them, except by sub-sulphide of copper. As deposited by galena, wire-silver was formed just as found in nature. Cubic iron pyrites and stibnite has little or no effect on silver salts, even when heated with them; arsenide of silver has a feeble effect. Platinum is reduced slowly from its bi-chloride solution by galena and grey copper ore, and still more slowly by iron pyrites. These were the only sulphides tried. None of the sulphides enumerated appear to reduce metallic mercury from its bi-chloride solution, but most of them reduce it to sub-chloride. Sulphide of gold even thus effects this mercurial salt, the sulphur being oxidized, and the gold set free. Neither sulphate nor acetate of copper are affected by these sulphides. Perchloride of iron is reduced to protochloride by galena and grey copper ore.

Now, when, in place of the chloride used in the above experiments, the oxide of gold was used in solution of either potash, bicarbonate of soda, or an alkaline silicate, the same reduction of the metal followed—at least, this occurred with galena and the inferior sulphides of iron and copper. With the oxide dissolved in ammonia, to produce this result, the solution must be heated to about  $200^\circ$  F. The sulphide of gold, however, dissolved in any of these salts or alkalies, could not be reduced by contact with any of these sulphides, even by boiling or adding strong deoxidizing agents, as tannic or gallic acids. This tends to show that in the case where Mr. Newberry obtained the reduction of gold upon iron pyrites from a solution of its sulphide in bicarbonate of soda mixed with organic matter, the gold had, prior to its reduction, in some way lost its sulphur and taken up oxygen, thus becoming a salt readily reducible by deoxidizing agents. Anyway, it is inconceivable how organic matter and metallic sulphides, alone or together, can desulphurize a good sulphide. Organic matter by its decay would rather generate than decompose sulphides. Gold has far more affinity for sulphur than for oxygen, and therefore a chemical interchange effected by the mere addition of bicarbonate of soda to gold sulphide is hardly supposable. Besides, if it were, the reduction should have proceeded as

well with this kind of solution as with gold oxide in solution of bicarbonate of soda, which I found it did not. Further experiments in this direction are, however, absolutely necessitated by the importance of ascertaining positively whether there is any solution of gold (likely to occur naturally) able to resist the reducing power of either metallic sulphides or decaying organic matter.

**MICROSCOPIC CHARACTER OF IRON AND STEEL.**—According to Mr. Schott, the different qualities of iron and steel can readily be distinguished by means of the microscope. Thus, the crystals of iron are double pyramids, in which the proportion of axes to the bases varies with the quality of the iron. The smallness of the crystals and the height of the pyramids composing each element, are in proportion to the quality and density of the metal, which are seen also in the fineness of the surface. As the proportion of carbon diminishes in the steel, the pyramids have so much the less height. In pig iron, and the lower qualities of hard steel, the crystals approach more closely the cubic form. Forged iron has its pyramids flattened and reduced to superposed parallel leaves, whose structure constitutes what is called the nerve of the steel. The best quality of steel has all its crystals disposed to parallel lines, each crystal filling the interstices between the angles of those adjoining. These crystals have their axes in the direction of the percussion they undergo in the working. Practically, good steel examined under the microscope has the appearance of large groups of beautiful crystals, similar to points of needles, all parallel and disposed in the same direction.—*Van Nostrand's Magazine*.

**WYOMING FOSSILS.**—Prof. Marsh has described several new fossil land lizards, discovered in the tertiary deposits of Wyoming. Some of these are as large as any now living in tropical America, but all are quite distinct from any hitherto found. They represent a new genus, called *Glyptosaurus*, because the head and parts of the body are covered with highly ornamented bony plates. Four species are described, readily distinguished by the form and ornamentation of the shields on the head: The largest, *G. sylvestris*, was about 4 feet long; the smallest, *G. anceps*, about 2 feet; the others are called *G. nodosus* and *G. ocellatus*. They will be fully described in the *Amer. Jour. of Science*.

**EXTRAORDINARY RAILROAD IRON.**—The *Montreal Gazette* states that the Canada Grand Trunk Railway has received from England samples of steel for rails and axles which will challenge comparison with any material ever made for these purposes. "A rail was twisted cold 13 times before fracturing, in the shape of a spiral spring; and the fracture indicated that the metal still retained its hardness, toughness and malleability. An axle was bent cold in a testing machine, with a pressure of 2 tons at 3 ft. 6 in. bearings, into a complete knot without any fracture whatever." Other remarkable samples are also reported.

**AQUEOUS SOLVENT FOR SULPHUR.**—Various experiments have been made for the purpose of finding an aqueous solvent for sulphur, a great desideratum in facilitating the use of this substance in medicine. Dr. Pole announces that if flowers of sulphur, previously well washed and dried at  $212^\circ$  F., are mixed with an aqueous solution of pure carbonate of soda and the whole digested at  $212^\circ$  for 10 hours, considerable sulphur will be taken up. Linseed-oil is another solvent for sulphur, the amount increasing with the temperature.—*Harper's for August*.

**STRUCTURE OF MOSASAURUS.**—The cretaceous fossils of the Rocky Mts., discovered by Prof. Marsh (*Amer. Journal of Science* for June), prove conclusively that the mosasaurid reptiles had a well developed pelvic arch and posterior limbs, a fact hitherto considered very doubtful. Some of the species were more attenuated than any before described. One, *Clidastes Wymani*, was about 30 feet long, and had the terminal caudal vertebrae less than 1-12th inch in transverse diameter.

**KNOT-TYING MACHINE.**—P. A. Perry, of Perth Amboy, N. J., has patented a device which is said to tie a square knot precisely like that made by hand. The nearest approach previously to tying by machinery has consisted in twisting the ends of the string or wire together and tucking them under the band.



# CORRESPONDENCE.

## A Trip to Colorado.—No. 3.

By OUR OWN TRAVELER.  
Golden City.

Leaving Denver on the Colorado Central R. R., we have a beautiful ride to Golden City, situated on the Vasquez Fork of the South Platte. This place has an exceedingly pretty site, and the natural resources of coal, fire-clay, building stone, iron ore, copper, etc., together with a good water-power, seem to indicate that the city must assume a very important position as a manufacturing center.

Already it has a large number of factories of various kinds, flour mills, paper mill, saw mills, tannery, brick works, etc., etc. It has also churches, a college, free schools, the Territorial School of Mines, etc.

The Golden City Mineral and Land Company has a capital of \$500,000, and owns much valuable property in the shape of coal and iron beds, deposits of "glass silica," etc. It manufactures fire-brick, tiles, drain pipes, etc. It has leased its coal lands to the Hazelton Coal M. Co., of which I shall have more to say. The efficient agent of the M. and L. Co. is Mr. M. C. Kirby.

### Manufactures.

One of the first places I visited was Boll's Fire Brick Works. These have been leased by Weibel & Co., and have a capacity of some 6,000 fire bricks weekly of excellent quality. Their bricks are used at Hill's smelting works at Black Hawk, and elsewhere. They furnish these at Golden City at the rate of \$100 per thousand. They also manufacture crockery.

The Golden City Paper Mill is a credit to the place and is ably managed by the superintendent, Mr. R. C. Wells. This mill supplies the daily and weekly papers of the Territory with a very good article of printing paper, and turns out also manilla and wrapping paper. Its full capacity is one ton in 24 hours, but at present it manufactures only about 10 hundredweight daily. It is run by water-power, employs 9 hands, and has a 36-inch cylinder machine.

The Rock Flouring Mill is owned by Mr. O. F. Barber, has three run of stones, is run by water-power, and has, I believe, an excellent reputation. I noticed two other flour mills here which were not running, however, at the time of my visit.

Large smelting works are to be erected here, I am told, within a short time.

### Schools—Papers—Hotels.

Jarvis Hall is a prominent institution here. It is intended to give a thorough course of studies, fitting boys for business and professional pursuits. The name is given in honor of Mr. Geo. Jarvis, of Brooklyn, N. Y., who donated the money for erecting the building. It is located very pleasantly about a mile out of the city on rising ground, and is a fine edifice. The Rt. Rev. Geo. M. Randall is rector. To Mr. Geo. W. Davies, the Vice-Principal, and to Mr. E. L. Berthoud, instructor in Civil Engineering, Botany and Geology, both gentlemen of fine attainments, I am indebted for several acts of kindness and valuable facts concerning the locality.

I visited the School of Mines, for which the Territory has given \$3,280, and much more has been raised by subscription. The building, at present unfinished, is of brick, three stories high, with a bell tower 80 feet in height, and has already cost nearly \$5,000. In this institution, Colorado has set an example which others of our Pacific States and Territories would do well to follow.

The *Weekly Transcript*, edited and published by Mr. Geo. West, looks carefully after the interests of the place. The *Jarvis Hall Record and Church Monthly* is an excellent publication, well edited by Messrs. G. W. Davies and C. H. Marshall.

The largest and most commodious hotel here, with good bath rooms and other conveniences, is the Golden House, C. S. Abbott, proprietor. There are other hotels here, as the Overland and the Astor.

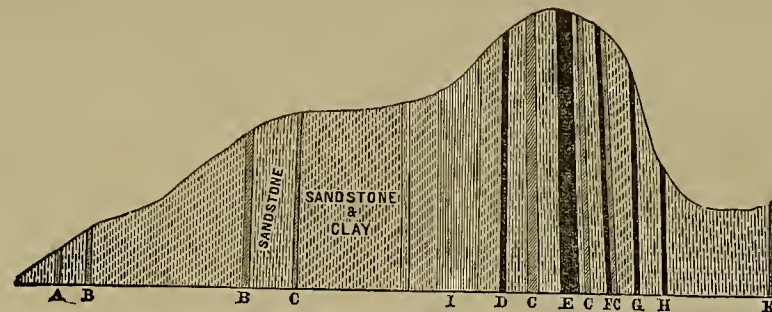
### Coal Beds.

The Hazelton Coal M. Co. has leased the coal veins in this district for a space of 20 years, and has been working for some time under the superintendence of Mr. E. B. Maltby. They have a shaft down 160 feet

on the vein and are now drifting to the west, working three shifts. The vein they are on averages 8 feet in width. They are now erecting large hoisting works. They have contracted to supply the smelting works with 100 tons daily, furnish the railroad with fuel, and produce a coal which is used by blacksmiths, containing but little sulphur. The company has a capital of half a million, and is developing the coal treasures of the Territory. It controls over 4,000 acres of coal land at Cañon City. It was originally formed in Kansas.

Coal was discovered here some 11 years ago. The formation is cretaceous, and the strata have been tilted up, having a dip of about 80° to the west. In order to give your readers a better idea of the veins, I send you a section of the mining locality, whence are obtained all the supplies for manufacturing, as coal, fire clay, potter's clay, building stone, iron ore and glass sand. For the original drawing I am indebted to Mr. E. L. Berthoud. The drawing is on a horizontal scale of 100 feet, and a vertical scale of 20 feet, to the inch. [Reduced in the engraving to a scale of 270 and 54 feet, respectively, to the inch. Ed.] The following is the explanation of the letters in the drawing:

A is a bed of iron conglomerate; B, layers of potter's clay; C, fire clay; L, hog



SECTION THROUGH CRETACEOUS COAL BEDS AT GOLDEN CITY, COLORADO.

ore; K, glass sand; D, coal vein 5 feet thick; E, coal vein 9 to 12 feet thick; F, coal vein 3 feet thick; G, coal vein 2 1/2 feet thick; H, coal vein 2 feet thick. Between these strata mentioned occur sandstone and clay or sandstone as denoted by the shading.

### Colorado Central R. R.—Proposed Extension.

The Colorado Central is built as far as this place, and two trains are run daily to and from Denver. The road passes through a good country for farming and stock raising. It is under good management. Mr. J. B. Shepherd is superintendent.

The Colorado Central R. R. Co. was organized to build a road from the eastern to the western boundary of the Territory, and was granted a charter in 1865. The road is in running order from its junction with the Kansas Pacific and the Denver Pacific, 3 miles north of Denver, to Golden, 15 miles, and is under construction and location to Central City, 22 miles further.

It is proposed to prolong the line ultimately, via Clear Creek Valley, to Georgetown (the center of the silver mines of Colorado), and over the main Rocky Mountain range, 12 miles N. W. of that town, into Middle Park, near the Hot Springs, thence via Gove's Pass northwesterly to the head of either the White or the Yampa river. Thence, by one of these valleys, to Green river, near the mouth of the Uintah river, up the Uintah to Duchesne River, up Duchesne Fork to Strawberry Valley which it ascends to the summit of the Wahsatch mountains. It will then follow down Daniel's Creek, and Timpanogas river to Provo City, to meet the Cal. Central Pacific, if extended eastward, or else to join the Utah Central at Salt Lake City.

### Comparative Distances.

The following table gives, as near as I can find out, the distances from Golden City to various places on the routes to Salt Lake City by this road and by the one now built.

COLORADO CENTRAL R. R.	
Golden to Central (branch).....	22 miles.
" " Georgetown.....	33 "
" " Summit Berthoud Pass.....	47 "
" " Hot Springs, Middle Park.....	71 "
" " Gove's Pass.....	96 "
" " Green River.....	284 "
" " Duchesne Fork.....	296 "
" " Summit Wahsatch Mts.....	384 "
" " Timpanogas River.....	396 "
" " Provo City.....	415 "
" " Salt Lake City.....	460 "

PRESENT RAILWAY ROUTE.	
Golden to Junction Kansas & Denver Pac. R.R.	15 miles.
" " Cheyenne.....	118 "
" " Ogden.....	718 "
" " Salt Lake City.....	780 "
Difference in favor of Col. Central	
From Golden to Salt Lake City.....	320 miles.
" " Junction to Salt Lake City.....	305 "
" " Cheyenne to Salt Lake City.....	84 "

Moreover, if these figures are correct, there would be a saving of fully 285 miles in traveling by this proposed route from St. Louis to Salt Lake City. I think that the above tables will be found as near the truth as can now be reached. W. H. M.

### The Loss of Quicksilver.

Ens. Press:—Some three weeks ago, C. H. A. asked a very important question relating to the loss of quicksilver—whether it was to be estimated by the ton of ore worked or by the silver extracted. I have waited in hopes that some one of your many experienced readers would answer it, thinking possibly I might pick up some additional information on the subject. As C. H. A. has from time to time contributed articles of much interest to the mining community, I do not think his query should be passed by without attention, and in absence of other response, I propose giving him my ideas, although I must confess

I do not think they will satisfy his demands fully. As my experience goes, if the ore is carefully manipulated, the loss will be per ounce of silver extracted, but close attention being so requisite, neglect often produces a loss, which should not be charged up to the "per ounce" of silver.

My investigations of the loss in the Comstock mills show the average to be about 1 1/2 pounds per ton of ore worked, while it has run as high as 1 1/2 pounds per ton, and I may say, in some instances as low as 1 pound. In other portions of the State of Nevada, and wherever there is lead and copper in the ore, the loss has reached as high as 5 pounds per ton, but this, of course, is exceptional. In the majority of instances, where lead, copper, zinc or antimony is present in the ore, it is sure to equal 2 pounds per ton. The statistics of loss for five years of the Freiberg works show it to be one and one-sixth pounds per ton of ore worked. The Real Del Monte shows 5 1/2 ozs. of loss to every 8 ozs. of silver extracted. The loss of mercury depends on so many things—care in retorting must be included here—that every one really has got to work it out for himself. To work what is popularly termed "rebellious ores," and bring the percentage of loss of quicksilver within the loss of mills working free ores, like the Comstock, is a matter of impossibility. As to the loss in our gold mining, that does not amount to much, as they do not use enough to catch the gold even alone—an evil which, they will learn after awhile, is "holding on to the spicket and letting out at the bung."

In view of the enormous consumption—waste, we may say—of quicksilver, in connection with its high price, it is a subject not to be lost sight of; and I think C. H. A. has done a good service in bringing the question up. ALMARIN B. PAUL.

### Mines and Mining at White Pine.

EDITORS PRESS:—The developments of the last two years in the leading mines situated along the western brow of Treasure Hill, have proved the existence of a large vein of spar of a known length of some three thousand feet. Commencing at a point west of the O. H. Treasure mine, it extends southerly, forming the western wall of both the Ward Beecher and the Aurora North and South mines.

It has many of the characteristics of a true fissure. Its structure is what may be termed banded, being made up of narrow bands or layers running parallel with the walls. The dip is about 45 degrees easterly, the limestone strata having a nearly

corresponding westerly dip, thus showing that it cuts the limestone of the country rock almost at right angles. The same vein, or one supposed to be a continuation of the same from its corresponding character, commences near the north wall on the west side of the Eberhardt, and follows the ridge, running south nearly to the locality of the Mazeppa mine. And here too we find large masses of low grade ore following its course along the east side; but there has been too little done in the way of real development to enable one to determine their importance or value. It is likewise possible that the same spar may continue to the north beyond the Hidden Treasure, and even through the rich mines west of Hamilton; but as the coralline limestone of the south part of Treasure Hill is covered by a thick body of shale on the north, we cannot make the assertion that such is the case until developments prove it.

Nearly all the most important mines in the free metal part of the district are found lying immediately on the east side of this spar, and the opinion is becoming general amongst the most experienced and best informed miners that the main north and south "ore channel" of Treasure Hill will be found accompanying it in an almost unbroken vein throughout its entire length. May we not likewise expect irregular bodies of ore to follow it in depth, possibly occurring only on one side, but more probably alternating from one to the other. This main "ore channel" is crossed at right angles by several east and west lines of deposits, but they differ from the north and south channel in many important particulars, being apparently more superficial in their character. They do not make in depth, but spread out in flat deposits varying from one to twenty feet in thickness. Neither are they accompanied by any defined spar veins.

### Mines.

The mines situated along the spar are, first, the O. H. Treasure. This mine is too well known to require any special description. It is without doubt one of our very best mines, but it has been badly worked, or, more properly, scarcely worked at all. And such might be expected to be the result when we take into consideration that it has had a new superintendent on an average about once every two months, none of them having remained long enough in charge to develop their particular plan for working the mine. It is to be hoped that, for the benefit of this community at least, a better system will be adopted by the owners in the future. Superintendents should have ample time to study the character of the mine they have in charge. The formation of this district is a new problem to most of them, and one that requires its own special solution.

The next mine on the south is the Ward Beecher Cons. This is the latest development in the district, but already gives promise of great value in the future. The first ore was found in this mine at a depth of 80 feet. A perpendicular shaft was sunk 40 feet to the spar vein, which was followed by an incline on its upper side until the ore was found. The present yield is about 40 tons of high grade ore per day. The Ward Beecher of the Eberhardt & Aurora, (limited) London, is a continuation of the last named on the south. It has been worked steadily the year past with constantly improved prospects. It is one of the best mines in the State, and the very best in this district at present. Though not so rich as the Eberhardt was in its best days, yet it far exceeds that famed mine in the quantity of high grade ore already produced, as well as that still in sight. The ore body has been traced in the drift of this mine 300 feet north and south and in connection with the Ward Beecher Cons. a total distance of five hundred feet. Its thickness is sometimes claimed to be as much as 60 feet, but probably the estimate is excessive. Present yield, about 80 tons per day.

The Aurora North, situated to the south of the last named, has never been worked very extensively, consequently it is difficult to form any estimate of what its future may be. But there is good reason to suppose that the body of ore developed in the two last named will be found running through this also. Indeed, the broken character of the surface gives good evidence of the disturbing action of the "ore channel" beneath. Aurora South, for a long time one of the leading mines of the district, is not at present yielding ore in as large quantities as usual, but with the amount of prospecting now going on, we may expect important developments and consequently an increased yield in the near future.

OBSEVER.

Treasure City, July 15th, 1871.



## MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

### California.

#### ALPINE COUNTY.

**MISCELLANEOUS.**—We gather the following items from the *Miner*, of the 15th: The Leviathan is fast establishing a reputation as one of the best paying enterprises in the county. Schenectady Co. has again struck it rich.

**DEEPER—BETTER.**—The last strike in the Tarshish lode adjoining the Schenectady Co., shows better ore than any before found.

**THE GLOBE.**—The ore (copper) in this mine resembles the Levithan and Merimac. One shaft took out two tons, yesterday, on the dump.

Water in a large body has been struck in the Mountain claim.

The furnace of the Monitor & N. W. Co., is now nearly completed. It combines all the valuable features of both the Stetefeldt and Whelpley and Stores furnaces, and it is thought will prove a grand success in smelting the rich ore of the Tarshish.

#### AMADOR COUNTY.

**THE MINERS' STRIKE** has again assumed serious proportions and, at the present time of writing it is difficult to predict what the end may be.

**SALE OF THE MARKLEY MINE.**—The Dispatch of July 22d learns that the Markley quartz mine, near Volcano, was sold on the Wednesday previous to an English company, for the sum of \$35,000. Persons who are acquainted with the mine say it was sold very cheap.

#### CALAVERAS COUNTY.

**MINES AND MINING ABOUT CAMP SECO.**—As this is the dry season, and there is no water to work placer diggings a goodly number of the miners have turned their attention to quartz, with very fair prospects so far, as several very promising lodes have already been struck. Better times are looked for in this section of the county.

**QUARTZ MILL REPAIRED.**—Parties engaged in working the Foot and Thompson quartz lead at Rich Gulch Flat have leased the old French mill, near by, and are having it thoroughly repaired—so says the *Chronicle*.

#### NEVADA COUNTY.

**MINING LOCATIONS.**—*Gazette* July 18th: E. Booth and others have located 21 claims of 100 ft. each on Bald mountain, Euroka township.

Lorine, Heath and others have located 12 claims of 100 ft., each running from the bank of McGuire's creek to the centre of Heath's Hill, Washington township.

**RICH STRIKE.**—Grass Valley Union, July 19th: The Seven-Thirty mine is yielding rich specimens again. The rock coming out is so rich that it is boxed up and put in the vault of Delano's bank.

Same papers say of the Daisy Hill Quartz mine: Several crushings have been taken out, and not one but has paid a good round figure. The last crushing, 15 loads, yielded \$805.37, over \$40 to the ton. Previous crushings have been better. This shaft on the Daisy Hill mine is now down 114 ft.

#### PLACER COUNTY.

**RICH STRIKE.**—The Auburn *Herald* of the 15th, says: On Tuesday last, Johnson & Co. opened a remarkably rich ledge three miles west of here, and near the famous St Patrick mine. They sunk a shaft some fourteen ft. and opened on rock that pays some six or seven dollars to the pound; or, if it holds out, about \$12,000 to the ton. At last accounts, two of the men were quarrying the rock and packing it to the cabin where the other was pounding out the gold by the use of a common hand mortar. This discovery has created quite a sensation.

The St. Patrick mine proves richer as the shaft descends (now down over 200 ft.). The company have purchased the Empire Quartz mill, and are repairing and adding improvements that will make it one of the best gold and sulphuret-saving mills in the State.

The Peter Walton mine, now owned by John McFadden & Co. is about to be reopened. It formerly yielded well. The Shipley mine is down 137 ft., 10 ft. ledge, and looking well; 100 tons of ore out, will pay from \$15 to \$20 per ton, can be worked at company's mill for \$4 per ton.

The Crate Hill mines, 2½ miles west of Auburn, are being developed by an association of capitalists. Fine prospects have already been found. The New York mine at this locality is looking well. Have a 12 in. ledge that will pay about \$40 per

ton. The excitement in this mining section grows more intense each day, and new locations and rich strikes follow each other rapidly.

**GOLD RUN.**—A correspondent of the *Stars and Stripes* says that Bradley & Kinder have completed their tunnel, after two years' work, through which they will run their sluice.

Judd & Co. continue to take out their usual quantity of dust—from \$6,000 to \$8,000 for each 20 days' run. The Brogan mine adjoining, is equally as good. The Kearsarge, owned by H. H. Brown & Co., has paid well; more than any other claim in this district in proportion to expenses. The correspondent claims for this locality the best gravel mines in the State, and Ophir district the richest quartz mines, not excepting Grass Valley.

#### SAN BERNARDINO COUNTY.

**RICH ORE FROM "SNOW STORM" AND "BEATRICE."**—*Guardian*, July 15: McFarland Bros. shipped, to San Francisco last week, 10 tons of ore from these ledges, to be worked in that city. The yield will be from \$500 to \$1,500 per ton. These rich mines, newly discovered, are situated in the famous Clark District in this county. Mr. Mintzer will soon make a similar shipment from his claims in the same district.

#### SAN DIEGO COUNTY.

**BULLION.**—The bullion shipment from Julian District for the week ending July 25th, amounted to \$2,600.

**CLARK DISTRICT.**—The *News* July 22d says: Three tons of selected ore from the McFarland mine, Ivapah, Clark District have been forwarded by Messrs. Brunn & Roe of San Bernardino and will arrive this evening. This firm has already made many shipments giving rich returns; but this last is expected to surpass them all and to establish beyond a doubt the reputation of the Clark District as a rich argentiferous region. Twenty-three sacks of ore from the ledge called "My Mary Anne" have assayed at the rate of \$971.62.

**ON THE SAN GABRIEL.**—The Zapata mine, on San Gabriel river, which has been worked with varying success for several years, is reported as increasing in its promise of prosperity, both as to the width of the vein and the quality of the ore. The placer diggings, also located on the upper San Gabriel, are said to promise well.

The mining operations have so disturbed the waters as to have driven the trout higher up the stream. The favorite fishing grounds now frequented by experts, are to be found on the north fork.

#### SIERRA COUNTY.

We condense from a correspondent of the *Messenger*, as follows:

**MORRISTOWN.**—The mining interests here are flourishing. The Galena hydraulic claim, after being unworked 11 years, was opened this season, and is already paying dividends over wages, without as yet any full clean up. Other mines in this vicinity are also doing well.

Poker Flat is not very lively just now; but strong hopes are entertained of "a better time coming."

**POVERTY HILL.**—But little has been done here, for several years, except to prosecute the work in the various tunnels, searching for the rich leads known to a certainty to exist hereabouts. Brighter days are dawning. The long tunnel below town is nearly finished and will soon be turned to good use. The San Francisco owners are here, and seem well satisfied with their prospects.

The Poverty Hill Tunnel Co. has been 11 years running a hed-rock tunnel, now in about 1,400 ft.

**SCALES DIGGINGS** presents a lively appearance. The miners are doing well.

#### SOLANO COUNTY.

**QUICKSILVER.**—*Recorder*, Vallejo, July 21st: On the Ranch owned by John Brownlie of this place, there is an ore found containing a large amount of quicksilver. Mr. B. has frequently thought working it and has made several assays, but never extended the work to any considerable degree. Now it is proposed to immediately commence the erection of works for that purpose. A kiln of the best quality of brick has been purchased from Mr. Hanks which are being hauled to the ground. The work will be pushed forward with vigor to completion, and the smelting process began.

### Nevada.

#### COPE DISTRICT.

**THE MINES.**—*Elko Independent*, July 22d: The company owning the El Dorado is down 60 ft., and has a five foot ledge, well defined and rich. This lucky company has now a fortune in sight.

The Monitor under management of Geo.

Cartier, is vigorously prosecuting its work upon a four-foot ledge, well defined and very rich. The mine will prove one of the richest in the district.

The Constitution mine is sinking on the ledge at a depth of 30 feet, with a three-foot ledge of good ore, some of which assays as high as \$5,000 per ton.

Pride of the West, is down 85 feet. The men are now running levels through fine bodies of very rich ore, and there is no doubt of this mine being a permanent thing.

The Independent Co., has out about 100 tons of high grade ore waiting for the stamps to be put in the upper mill.

The chloriders are still at work. They have made about \$20,000 within the last three months.

**BULL RUN.**—During the last few days there has been quite a delegation in from Bull Run district procuring supplies, and our merchants have been doing a lively business. The Blue Jacket, Johnson, Ontario and Nevada companies are all taking out large quantities of very rich ore. Gov. Chillis has out a large quantity of the Pound Treasure and Prominent which he will ship to Mountain City for reduction.

**RAILROAD CITY.**—A rich mine.—The first systematic effort to develop this district was by the Hussy tunnel, which runs 80 ft. through a body of silver-bearing galena, the breadth or depth of which no one knows. The ore is undoubtedly rich.

The Elko tunnel is in about the same distance in similar ore.

**GALENA ORE PERMANENT.**—Much distrust was recently felt about the permanency of this galena ore; but those doubts are about removed, and the impression is now general that this will become one of the best and most permanent districts in the State.

**RICH ORE.**—The *Elko Independent* July 22, says that A. J. Rolastone has just shipped 30 tons of ore from the Tripoli Railroad district to San Francisco. The ore assays high up in the hundreds of dollars. He has a large quantity still on the dump which will soon follow. The mine is turning out splendidly.

**A NEW AND RICH MINING DISTRICT.**—A dispatch from Ogden, dated July 10, says: The new mining district on the line of the Central Pacific Railroad, four and a half miles from Tecoma station, is reported to be turning out some ore, ranging from \$45 to \$300 of silver, and \$35 to \$65 of lead to the ton. The Tecoma mine bids fair to be a second Emma. It is now sending ore to the Truckee Smelting Works, which will

#### ELY DISTRICT.

**BULLION—PICOCH,** July 18th: Wells, Fargo & Co. shipped, from July 9th to 14th, through their Agent, B. F. Sides Bullion valued at \$69,518.43

**DEFIANCE.**—The *Ely Record*, of July 2d says this mine has been worked steadily of late and considerable ore taken out. The proprietors, Wilson & Co., are shipping ore to Meadow Valley, and are expecting handsome returns. There are several other mines near by, partially developed. A great obstacle to the prosperity of this locality is the lack of a custom mill near by.

#### EUREKA DISTRICT.

**THE MARCELINA Co.** originally formed in San Francisco, for the purpose of working smelting ores, according to a correspondent of the *Sentinel*, has recently shown signs of life, having lain for a long time dormant. This company built the first furnace on the present Jackson site, and after having completed it made one "run," took a ride over toward Hamilton, and failed to put in an appearance again in this section. At that time the mine was considered worthless, but under the supervision of George Bibbins it soon commenced to show signs of paying ore, and after a few weeks a large body was struck. We trust that somebody will take hold of this property and work it to advantage, as a large amount of money is to be realized.

**THE EUREKA,** after a long probation, is showing signs of a speedy and permanent prosperity. It is impossible to say too much in favor of the Eureka District; as results from actual workings is the best and safest criterion of excellence to be adduced in our favor. Owners of property are constantly coming here—those of the Consolidated, of the Richmond, Tilton, Phoenix, and, in fact, all the companies and corporations here existing.

#### HUMBOLDT.

**BULLION.**—*Silver State*, July 22d: The amount of bullion shipped from the Arizona mine, through Wells, Fargo & Co., since our last issue, was \$11,115.

The Sheha mine continues to show increased rich ore. This mine is now proven to be one of the most valuable in the State, and its lucky owners will ere long realize

handsomely from its embedded treasure.

The Eclipse mine is being vigorously pushed ahead. The tunnel is in 175 ft., progressing a foot a day. The boys are feeling confident of acquiring large fortunes, once the vein is reached.

**ENCOURAGING REPORTS.**—A correspondent of the *Silver State* writes from Galena, July 16th, that at no time since the formation of the district have the indications been better for a prosperous and permanent mining camp. In almost every instance where the water line has been reached on well defined ledges, good prospects have been obtained. The mines are also very generally improving. Several mines have lately made gratifying discoveries.

A new strike on the best defined ledge here, was made recently. The parties owning the mine, after encountering considerable difficulty, were finally rewarded with goodly showing of mineral.

The Copper Co. have found a fine body of ore within the past few days. The Superintendent, Capt. Richards, is now making weekly shipments of copper ore.

The Buena Vista mine, owned by McBeth & Millander, is being steadily pushed ahead. The proprietors have spent much money in fitting up and opening their mine, and deserve a rich and extensive deposit of mineral, as a reward for their nerve and energy.

The White mine is reported to be in a rich body of mineral in the south level and close to the Shiloh line. The latter mine is now ready to commence operations.

#### WASHOE.

**BULLION.**—Gold Hill *News* July 25th: Silver bars to the value of \$28,000 were yesterday received at the Virginia branch of the Bank of California. They were from the Yellow Jacket and Crown Point mines.

Bullion to the aggregate value of \$13,000 passed through Carson Saturday afternoon, from Benton and Independence. About 200 pounds also arrived at the Branch Mint from the southern districts.

**ASSESSMENTS.**—An assessment of \$5 per share has been levied by the Segregated Belcher Mining Co., and \$1 per share by the Buckeye Gold and Silver Mining Co.

**RICH ORE.**—*Virginia Enterprise*, July 19: Some very rich ore is said to be coming out of the Gould & Curry at present. We understand that it comes from the second station, and the Savage Co. are digging in the same direction with excellent success. It is also reported that a body of ore assaying some \$700 per ton has been cut into in the Crown Point.

**SUTRO TUNNEL.**—The Sutro Tunnel is 2,247 feet. The ground is working very well. There are now seams of quartz in the face of the tunnel.

**CHOLLAR.**—The Chollar Company are taking out 200 tons per day. The mine looks as well as ever throughout and there is ore in sight everywhere.

**LADY BRYAN.**—The ore breasts of this mine continue looking and yielding excellently, and the mill of the company is reducing about 30 tons of ore per day on the average.

**KENTUCK MINE.**—This mine continues to yield an abundance of fine ore on the 600 and 700 foot-levels. They are opening out on the 400-foot level and getting it in shape for taking out ore whenever it may be thought advisable to do.

### Arizona.

**RECENT DISCOVERIES.**—Recently, says the San Bernardino *Guardian*, there has been discovered in the Hualapai District, Arizona, some seventy or eighty ledges of mineral, gold, silver, copper and lead, in paying quantities. The ore in the leads have been assayed and go from \$70 to \$2,000 per ton. The road from this place to Ft. Mojave, and this District, has recently been worked and placed in good condition with plenty of water and grass on the route. The hill known as Piute, Hill has been graded and improved. The whole work has been performed through the perseverance and instrumentality of that indomitable Arizonian, Mr. William H. Hardy.

### Colorado.

**CARIBOU.**—New discoveries continue to be reported in this district. The *Post* says Chas. A. Barstow and associates, within the last few days have discovered a gold lode, near the town, from which the first test showed gold at the rate of \$500 per ton; the second \$900.

Eleven distinct discoveries are reported by the *Post* in one week.

**RICH ORE.**—Lesh & Bernham within the week, have opened their claim to the depth of 17 ft., at which point they have found ore exceedingly rich—"half as good as Mexican dollars."



**SUMMIT COUNTY.**—Col. Candler, of the Boston Silver Mining Association, has several wagon loads of machinery, etc., on the way to Breckenridge. The works being constructed by this company will be complete, combining amalgamation with smelting, and of 20 tons capacity per day.

This county contains 125 miles of ditches, and 50 miles more will soon be commenced. Prospecting has been very brisk during the summer, and many good gulches have been found.

Blue River has been more or less worked for 20 miles of its length. Many rich spots have been found since '50, but of late not much over expenses have been realized.

**CLARK COUNTY—MILL CITY.**—The work of development goes on in the mines about Georgetown. Prospecting is pretty much suspended. The present work is being done in old and well-known lodes. The Capital lode, in Ohio Gulch, is giving employment to nine men. The developments are very satisfactory. The Mohawk, and Wild Wagoner, are doing well.

Riley, Gilliam & Jones have recently discovered and are developing the "4th of July" lode on McClellan mountain. They report progress. The character of the ore is gray copper, brittle silver, carbonate and sulphuret of copper, mixed with fluor spar. It looks very rich; assays show \$891 per ton.

**Idaho.**

**FROM THE BASIN—CHRISTIE GULCH.**—The World of July 13th: The old Christie Ditch, better known as the "Big Ditch," belonging to the Buena Vista Bar Co., has been connected with the old Dunn ditch, so as to afford the Co. a larger supply of water at their extensive diggings on the bar.

**BOYLE'S GULCH—A NEW DISCOVERY.**—The same paper is informed that a new quartz lode, which prospects very rich, has recently been discovered near Boyle's gulch about one and a half miles from Placerville. It was accidentally found while piping on Petersons & Weiss' claims and discovered to be a well defined lode of about three feet in width, filled with decomposed gold quartz; 1,400 feet, were located and work will be commenced thereon next week.

**Montana.**

**THE BOULDER COUNTY.**—Mr. Devine, of Boylis Gulch informs the Independent of Virginia City, that Messrs. Carr & Co. are making \$20 per day to the hand. Devine & Co. are rigging a wheel, with which they hope to reach the bed-rock in the main boulder, which is supposed to be rich.

**OPHIR BAR.**—The Helena Gazette says that claims on Ophir Bar pay from \$10 to \$25 per day to the hand. There are some 12 companies on the bar.

**OPHIR GULCH.**—Claims in Ophir Gulch are also doing well.

**PILGRIM BAR.**—Among the clean-ups on Pilgrim Bar last Sunday, says the *Montanian* of the 15th inst. were Holcomb & Berry, \$4,190; Brelsford & Co. \$1,190; Roe & Bell, \$2,000; Steele & Co., \$1,050. Brown & Blakeley, who have the extension of Pilgrim Bar south, struck it last week and cleaned up 19 1/2 oz. from one box. This strike has had quite a good effect on mining property in that vicinity. Wilbur & Co. on Independence Bar cleaned up, for three consecutive weeks, \$350, \$500 \$750. Jas. McMasters cleaned up \$350 in three days, and was expected to take out \$1,000 during the next week.

**Utah.**

**SALT LAKE CITY,** at the present time presents a scene of busy life, and *bullion* seems to be the crowning feature of the city and country at present. Vest monuments of it in various localities giving proof of the steady, onward progress of mining interests in Utah.

**MINE SELLING** seems also to be a good business, as nearly every mine which can be had at fair figures finds a ready purchaser among the capitalists, who are constantly flocking to that region.

**THE EMMA MINE,** says the *S. L. Tribune* is par excellence the mine of Utah, and is doing more than is generally supposed. It is turning out on an average 100 tons of ore per day, worth \$135 per ton, over and above all expenses, making the handsome sum of \$13,500 net profit for every 24 hours. This multiplied by 365 gives the astonishing product of \$4,927,500 per annum! It requires a hundred hands to get this ore above ground, besides a large number that are employed in timbering.

**THE REVOLUTION MINE** in Little Cottonwood, is developing with encouraging results. It is the oldest location on Emma Hill. A large vein of chloride assaying

from \$133 to \$250 per ton, has been reached, and the amount of mineral is unquestionably large. It bids fair to become one of the big mines of Little Cottonwood. The fortunate owners are Harlow, McKay and Howland.

In the Davenport mine a 16-foot vein was struck a few days ago. The owners had been offered \$75 per foot before the last discovery, which amounts to \$90,000 for the mine. The figures we understand will have to be increased now.

**THE PROVO MINE.**—A fine lump of ore, weighing 230 pounds, from this mine, is to be seen at Wells, Fargo & Co.'s. The body of ore in this discovery, is 24 feet wide, and up to the present no wall rock has been found. Assays give \$227.70 in silver to the ton, with 69 per cent lead; 25 tons are already on the dump, and it is the purpose of the owners to commence the shipment of ore as soon as their trail is finished—so says the *News*.

**CHURCH DIGNITARIES GOING INTO MINING.**—The *Tribune* says that a new mining company is being formed to operate in Provo Valley, comprised of Church dignitaries amongst whom the name of A. Milton Musser appears prominently. This appears to be a "New departure" on the part of Mormon Church dignitaries, who have heretofore refused to have anything to do with the developing of the mines.

**SNAKE RIVER.**—Reports from this region and from Stockton are very favorable. Stockton is developing some famous mines. They have now a smelting furnace there which is reliable and doing well. The mines there it is thought when fully opened may keep a number of furnaces in operation.

FROM OPHIR word comes that the new furnace erected by the Ophir Co. is still pouring out the bullion. It fired up the first time on Wednesday, the 4th inst., and up to date continuously run with no sign of "stop." It is an immense success, being used without admixture with other ores fluxes, and the bullion assays \$143.50 per ton. Daily smelting is being made successful, and Utah is being aggrandized by its mineral productions.

**Cinchona.**

The Agricultural Bureau at Washington, are cultivating with apparent success, from importations from the British Governor of Jamaica, a quantity of these (Peruvian bark) trees, and will have some 2,000 to transplant and distribute in January. They will not bear over two degrees of frost. Elevated ground free from frost is preferred. We think that California offers a very desirable field for their culture, and hope our State will share liberally in the contemplated distribution, although its quota be necessarily delivered at a more favorable season for transit over the mountains. Seed for this tree could doubtless be secured by application to His Excellency, W. A. G. Young, Colonial Sec'y, Kingston, Jamaica, W. I., or to U. S. Consul Runsey, Quito, Ecuador, South America. Instructions for cultivating would doubtless be given freely by those gentlemen. It certainly would by the department at Washington.

**Japanese Persimmons.**

The Department of Agriculture at Washington, is cultivating 75 persimmon trees brought from Japan by Capt. Ammen. They were taken overland from San Francisco, and although they met with a delay of three days in our custom house, every tree lived and appeared to be thriving when we saw them recently. This fruit in Japan is said to be equal in size to apples and superior to our American persimmons.

**PIONEERS AND SUTTER'S FORT.**—A '49 Pioneer, in the *Calistoga Tribune*, suggests that the various Pioneer Societies in the State unite to the purchase of the site of Sutter's Fort, at Sacramento, with the view of restoring its broken down walls and fitting it up as a place of public resort and infirmary for indigent pioneers. The site, if not thus rescued, will soon be cut up into city lots, and the last vestiges of its walls destroyed. The City Street Railroad will soon be extended to the locality, and there is no question but that the speculation could be made to pay for itself, if it was so desired. The suggestion is an eminently proper one, and most timely.

**Mining Stock Market.**

(San Francisco Stock and Exchange Board.)

THURSDAY EVE., JULY 27, 1871.

There has been considerable fluctuation in stocks during the past week. Eureka, which has been falling for quite a number of weeks and has lately gone down rapidly, has sold this week for \$28 1/2 to \$21. Anadior has been quoted at \$300 to \$260.

**Savage M. Co.**

We have received the annual report of the Savage M. Co. for the year ending July 10th 1871. We extract the following from the superintendent's report:

Amount of ore extracted.....	39,716 tons.
" reduced.....	38,147 "
" sold.....	802 "
Average yield per ton of ore reduced.....	\$21.45
" cost per ton of production.....	\$11.06
" cost per ton of reduction.....	9.95 21.01
Average profit per ton.....	0.42
Total product of mine.....	\$827,230.46
Cost of extraction and reduction.....	818,719.78
Total profit.....	\$8,510.68

The average assay value of the ore reduced was \$32.73 per ton, and the average yield was 65.5 per cent. of this value. The proportion of gold and silver in the ore was 27.8 gold to 72.2 silver; in the bullion, 31.8 gold to 68.2 silver. The percentage returned of gold and silver contained in the ore was 75.0 gold and 61.9 silver. The average value of the bullion after melting was \$1,83 1-10 per oz., and the loss of weight in melting 2.9 per cent.

The superintendent says: "The future of the mine must be determined by reaching a greater depth. Without doubt considerable ore yet remains in the upper levels; but at this time we have no knowledge of any extensive body of ore in any part of the mine."

**QUOTATIONS.**

The following table gives last Thursday quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week.

July 20 Highest.	Lowest.	July 27.	Adv.	Dec.
Alpha.....	110	8	—	—
Belcher.....	225	193	212	—
Chollar-Potosi.....	47	40	—	—
Crown Point.....	322	305	306	—
Eureka Consols.....	14	15	15	1
Golden Chariot.....	43	44	36	—
Gould & Curry.....	112	110	115	—
Hale & Norcross.....	92	92	78	84
Ida Elmore.....	38	9	8	18
Imperial.....	38	38	36	—
Kentuck.....	120	114	115	—
Meadow Valley.....	19	20	19	—
Ophir.....	8	9	8	10
Oriz Hill Treas.....	8	9	7	8
Overman.....	8	9	7	8
Savage.....	42	43	40	41
Yellow Jacket.....	67	67	61	63

**Latest Prices.**

NAME.	LOCATION.	AMOUNT.	DAY.	DAY.
Alpha Consols.....	Ida Elmore.....	35	36	—
Anadior.....	Imperial.....	35	36	—
Belcher.....	Kentuck.....	194	194	—
Chollar-Potosi.....	Meadow Valley.....	94	94	—
Crown Point.....	Ophir.....	84	84	—
Eureka Consols.....	Overman.....	7	7	—
Eureka.....	Savage.....	40 1/2	41	—
Golden Chariot.....	Yellow Nevada.....	63	63	—
Gould & Curry.....	Yellow Jacket.....	63	63	—
Hale & Norcross.....	—	—	—	—

**Mining Shareholders' Directory—Meetings, Assessments and Dividends.**

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME.	LOCATION.	AMOUNT.	DAY.	DAY.
Buckeye, Lyon Co., Nev., July 19, 31.....	Aug. 22—Sept. 8	—	—	—
Caney, Lyon Co., Nev., July 19, 31.....	Aug. 22—Sept. 8	—	—	—
Eagle Q. M. Co., Cal., June 14, 25.....	Aug. 18—Aug. 14	—	—	—
Hale & Norcross, Va. City, June 29, 30.....	Aug. 1—Aug. 19	—	—	—
Highland S. M. Co., Nev., July 13, 10c.....	Aug. 1—Sept. 11	—	—	—
Ida Elmore, Nev., July 12, 30c.....	Aug. 1—Sept. 11	—	—	—
Marble Falls, Nye Co., Nev., July 12, 30c.....	Aug. 1—Sept. 11	—	—	—
Marcellina, Nev., June 2, 20c.....	June 11—August 13	—	—	—
Meadow Valley Ex., July 6, 31.....	Aug. 14—Sept. 11	—	—	—
Mountain City M. Co., June 8, 25c.....	July 18—Aug. 8	—	—	—
Nevada Butte, Battle Mt., Nev. July 15, 31c.....	Aug. 22—Sept. 16	—	—	—
Noonday, White Pine, July 13, 20c.....	Aug. 21—Sept. 18	—	—	—
Nevada Land & Min. Co., July 25, 4c.....	Aug. 29—Sept. 20	—	—	—
Ophir, Va. City, July 12, 35c.....	Aug. 16—Sept. 8	—	—	—
O. H. Treasure, July 6, 32c.....	Aug. 9—Sept. 2	—	—	—
Overman, G. H., July 26, 32c.....	Aug. 31—Sept. 18	—	—	—
Phenix, Lander Co., Nev., July 24, 50c.....	Aug. 28—Sept. 19	—	—	—
Sci. Belcher, O. H., July 20, 55c.....	Aug. 23—Sept. 11	—	—	—
Sierra Iron Co., May 17, 60c.....	June 25—July 20	—	—	—
Sunbeam, Kern Co., June 14, 85c.....	Aug. 15—Aug. 30	—	—	—
Taylor, El Dorado Co., May 27, 10c.....	July 12—August 4	—	—	—
Paylor M. & M. Co., Cal., July 11, 10c.....	July 12—August 4	—	—	—
Virginia M. & M. Co., W. P., July 25, 25c.....	Sept. 2—Sept. 20	—	—	—

**MEETINGS TO BE HELD.**

Allegany Consolidated.....	Annual Meeting, July 31
California.....	Annual Meeting, Aug. 1
Caledonia.....	Annual Meeting, Aug. 1
Camp Floyd.....	Annual Meeting, July 31
Eastport Coos Bay Coal.....	Adjourned Meeting, Aug. 18
Ida Elmore.....	Annual Meeting, Aug. 7
Mohawk & Montreal.....	Adjourned Meeting, Aug. 22

**LATEST DIVIDENDS—(Within Three Months).**

Obollar-Potosi, \$2.....	Payable July 11
Obollar-Potosi, \$5.....	Payable May 20
Crown Point \$10.....	Payable June 10
Eureka, div. \$2.....	Payable May 6
Eureka (Cal.) \$1.....	Payable July 7
Eureka Consols, 75c.....	Payable, April 20
Golden Chariot, div. \$7.....	Payable March 10
Hale & Norcross, div. \$5.....	Payable April 10
Meadow Valley.....	Payable July 15
Natoma, div. 1 per cent.....	Payable June 5
North Star, div. \$3.....	Payable May 10
Overman.....	Annual Meeting, July 13
Redington, 1 per cent.....	Payable June 5
Yellow Jacket, \$2 50.....	Payable July 10
Yule Oravel, 60 cts.....	Payable July 5

\*Advertised in this journal.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

**San Francisco Retail Market Rates.**

FRIDAY, July 28, 1871

MISCELLANEOUS.	
Butter, Cal. fr. 35	@ 45
Pickled, Cal. fr. 35	@ 45
du Oregon, lb. 25	@ 30
Honey, lb. 25	@ 30
Theresa, lb. 25	@ 30
Eggs, per doz.....	35 @ 45
Lard, lb. 18	@ 20
Beef, lb. 10	@ 12
Bacon, lb. 10	@ 12
Butter, lb. 10	@ 12
Sugar, Map. lb. 25	@ 30
Plums, dried, lb. 15	@ 25
Peaches, dried, lb. 15	@ 25

PRODUCE, ETC.	
Codfish, dry, lb. 60	@ 12 1/2
Flour, ex. 50 lb. 100	@ 75
Peruano, do 50	@ 80
Corn Meal, 100 lb. 20	@ 25
Wheat, lb. 100 lbs. 25	@ 25
Oats, lb. 100 lbs. 10	@ 20

FRUITS, VEGETABLES, ETC.	
Pine Apples, lb. 50	@ 60
Bananas, lb. 50	@ 60
Cal. Walnuts, lb. 20	@ 20
Granberries, lb. 75	@ 100
Cranberries, lb. 75	@ 100
Apples, lb. 50	@ 60
Red Astrakhan, lb. 50	@ 60
Plums, lb. 75	@ 100
Plums, Cherry, lb. 6	@ 8
Apricots, lb. 10	@ 12 1/2
Junco, lb. 10	@ 12 1/2
Apricots, Royal, lb. 10	@ 12 1/2
Mourad, lb. 10	@ 12 1/2
White, lb. 10	@ 12 1/2
Cherries, lb. 10	@ 12 1/2
Ornamental, lb. 10	@ 12 1/2
Goschberries, lb. 10	@ 12 1/2
Raspberries, lb. 10	@ 12 1/2
Strawberries, lb. 10	@ 12 1/2
Blackberries, lb. 10	@ 12 1/2
Oranges, lb. 10	@ 12 1/2
Lemons, lb. 10	@ 12 1/2
Limes, lb. 10	@ 12 1/2
Asparagus, lb. 10	@ 12 1/2
Appricots, lb. 10	@ 12 1/2
Artichokes, lb. 10	@ 12 1/2
Brussels sprouts, lb. 10	@ 12 1/2
Beets, lb. 10	@ 12 1/2
Potatoes, lb. 10	@ 12 1/2
Spinach, lb. 10	@ 12 1/2
Broccoli, lb. 10	@ 12 1/2
Cauliflower, lb. 10	@ 12 1/2

POULTRY, GAME, MEATS, ETC.	
Chickens, apiece 50	@ 75
Turkeys, lb. 20	@ 25
Ducks, lb. 20	@ 25
Teal, lb. 20	@ 25
Geese, wild, each 25	@ 30
Partridges, lb. 25	@ 30
Wild, do. 25	@ 30
Hares, each 25	@ 30
Rabbits, tame, 25	@ 30
Squirrels, lb. 25	@ 30
Beef, tend, lb. 20	@ 25
Sirloin and rib, lb. 20	@ 25
Corneal, lb. 12	@ 15
Smoked, lb. 12	@ 15
Pork, rib, etc., lb. 12	@ 15
Chops, do. 12	@ 15
Veal, lb. 15	@ 20
Cutlet, do. 20	@ 25
Mutton chops, 12 1/2	@ 15
Legs, do. 12 1/2	@ 15
Lamb, lb. 15	@ 20
Conques, beef, ea. 15	@ 20
Pongues, pig, ea. 15	@ 20

LEATHER MARKET REPORT.	
Corrected weekly by Dolliver & Bro., No. 109 Post st.	
SAN FRANCISCO, Thursday, July 27.	
SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.	
French Calf Leather, lb. 10	@ 20
Santa Cruz Leather, lb. 10	@ 20
Country Leather, lb. 10	@ 20
The French market remains the same. California kips are higher and in demand.	
Foot, 8 Kil. per doz.....	\$62 00/0
Foot, 11 to 19 Kil. per doz.....	65 00/0
Foot, second choice, 11 to 19 Kil. per doz.....	60 00/0
Lemoine, 16 to 19 Kil. per doz.....	96 00/0
Levin, 12 and 13 Kil. per doz.....	68 00/0
Corneal, 16 Kil. per doz.....	72 00/0
Corneal, 12 to 14 Kil. per doz.....	63 00/0
Ogema Calif. per doz.....	54 00/0
Merier Calif. 16 Kil. per doz.....	65 00/0
Common French Calf Skins, lb. 10	@ 20
French Kip, lb. 10	@ 20
California Kip, lb. 10	@ 20
Eastern Wheel Stuffed Calf, lb. 10	@ 20
Eastern Sheep Stuffed Calf, lb. 10	@ 20
Eastern Calf for Backs, lb. 10	@ 20
Sheep Roams for Topping, all colors, lb. 10	@ 20
Sheep Roams for Lining, all colors, lb. 10	@ 20
Best Jodot Calf Boot Legs, lb. 10	@ 20
Good French Calf Boot Legs, lb. 10	@ 20
Best Jodot Calf Boot Legs, lb. 10	@ 20
Harness Leather, lb. 10	@ 20
Fair Bridle Leather, lb. 10	@ 20
Skirting Leather, lb. 10	@ 20
Wholesale, lb. 10	@ 20
Buff Leather, lb. 10	@ 20
Wax Side Leather, lb. 10	@ 20

\* Per lb. † Per dozen. ‡ Per gallon.

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**Leather Market Report.**

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO,



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

#### FOR THE WEEK ENDING JULY 11TH.

MEDICAL COMPOUND OR BITTERS.—Ahram M. Loryea, East Portland, Oregon.

PRINTER'S GALLEY-REST.—John M. Murphy, Olympia, Washington Territory.

GANG-POW.—William Hay and Thomas B. Freeman, Hillsborough, Oregon.

SHINGLE MACHINE.—Oliver A. Olmsted, Sebastopol, Cal.

CURTAIN FIXTURE.—Lodowick L. Sawyer, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

### The State University.

Last week we had the pleasure of visiting the chemical and physical laboratories of the State University. We had heard that some of the very extensive chemical apparatus, (purchased some years ago in Germany by Professor Fisher for the University) had been unpacked, and Prof. Carr very kindly gave us the opportunity on inspecting the laboratories.

It would fill up a very large portion of our space to enumerate the articles which we saw, which comprise full sets for qualitative and quantitative analysis of solids, liquids and gases, (the last to a certain extent). Vessels of glass, porcelain and platinum, of every kind, a large assortment of the rarer and more difficultly obtainable chemicals, everything necessary for a complete laboratory, are here collected. Only a part of the apparatus has been unpacked, and we were shown the exterior of numerous boxes stored away in different places, whose contents are yet undisturbed. It is therefore very difficult to make comparisons of the amounts here and elsewhere, but we can at least say that we very much doubt whether any institution of the country has a larger collection than has the State University.

This apparatus is intended for all the various colleges of the University, agricultural, mining, medical, mechanical and classical, and hence its large size. It would appear as if the equipment of such a laboratory as Bunsen's, in Heidelberg, had been taken in part as a guide for its collection.

We were also shown considerable apparatus for assaying, drawings of metallurgical apparatus, and the basis of a mining library. We were next shown a collection of physical apparatus, some of it very excellent, made by Prof. John LeConte.

In the technological department were several sets of materials, showing the various substances and reagents employed in powder manufacture, sugar making, wood preserving and artificial stone manufacture (Ransome's), and illustrating the various stages of each process, forming very interesting collections.

A large geological collection and a number of cases of minerals were likewise viewed. We saw enough to convince us that the University has sufficient equipment in these respects for full courses of study; and we likewise saw that it has not yet sufficient room for the proper arrangement thereof. Prof. Carr has, we understand, been occupied for some time in arranging what is now visible, and he has yet plenty of work to do. We believe that he has no assistant (we omitted asking him), but certainly he must need one, as the calls upon his time are very numerous,—more than any one man can properly respond to. For his kindness in devoting several hours to us, we are indebted to him,—and just as deeply indebted as if it were not vacation for the students.

### The Yosemite Valley.

A statement has been published, said to have been made by Galen Clark, Guardian of the Mariposa Grove and the Yosemite Valley, which shows that the State ought to do more for the preservation of these places. The Legislature of 1865-6 made an appropriation of \$2,000, which was to last two years and to pay all expenses incident to taking charge of the Valley and Grove. There are eight commissioners, it will be remembered, and all their traveling expenses, printing, building two bridges, etc., etc., were to be paid for out of this sum. Mr. Clarke was to receive \$500 per year for himself and a sub-guardian, or \$250 each. This has not been paid since 1867.

Some complaint having been made with

of justice. We join him in the expressed wish that action should be taken for improving the Grove and Valley. There is a most urgent necessity therefor.

These two localities ought to be well preserved. They were given to the State with the understanding that they should be. The State dare not be meanly parsimonious in the matter, for parsimony means destruction of many of their chief beauties. If the State is unable to take care of them, then she should re-convey them to the United States. Indeed, it would be better that they should be kept in proper condition as private property, than injured through public neglect. The good condition of the Calaveras Grove shows that they can be preserved. But the State ought to own them and to care for them. We hope the next Legislature will set all this matter right.

#### The Yosemite Falls.

In connection with these remarks, we



NEAR VIEW OF THE YOSEMITE FALLS.—2,634 FEET IN HEIGHT.

From a Photograph by C. L. Weed.

regard to tolls charged at the Valley, Mr. Clark explains that a bridge over the Merced and a series of ladders and a trail leading up to the Nevada and Vernal Falls were considered a necessity. The commissioners had no money for them. They therefore allowed them to be built (and toll charged) with the understanding that the State can purchase them at any time at a valuation which is to decrease every year; and at the end of ten years they revert to the State if not purchased beforehand.

While we were at the Mariposa Grove last month, we noticed with pain the ravages made by fires. It now appears that Mr. Clark spent eight days last year, and undoubtedly more previously, in checking fires. What we saw was probably the result of previous fires.

Mr. Clark distinctly disclaims any desire to make complaints against the State for arrears of salary, due him. But we, although we have never seen the gentleman, do complain of this on the very principles

of justice. We join him in the expressed wish that action should be taken for improving the Grove and Valley. There is a most urgent necessity therefor. These two localities ought to be well preserved. They were given to the State with the understanding that they should be. The State dare not be meanly parsimonious in the matter, for parsimony means destruction of many of their chief beauties. If the State is unable to take care of them, then she should re-convey them to the United States. Indeed, it would be better that they should be kept in proper condition as private property, than injured through public neglect. The good condition of the Calaveras Grove shows that they can be preserved. But the State ought to own them and to care for them. We hope the next Legislature will set all this matter right.

ASPHALTUM BEDS.—Says the Gilroy *Advocate*: By the kindness of James P. Sargent, Esq., we were enabled a few days since to visit the remarkable asphaltum beds located in the Juristo Rancho, about four miles from Gilroy, owned by Sargent & Bros. These beds cover about twenty acres of land, have over a thousand springs upon them, and yield in large quantities a superior quality of asphaltum. They have produced over five hundred tons this year. The same parties have an asphaltum bed of six hundred and forty acres in Los An-

geles county, which they intend to have worked in a short time. The Sargent Bros. are carrying on an extensive business, not only in the production of asphaltum, but also in stock dairies, etc. They own in all about 50,000 acres of land. They have at present 15,000 head of cattle, and 300 head of horses, mares and colts, among them some of the finest stock on this coast.

### A Coal Mine on Fire.

The Philadelphia *Bulletin* describes the ineffectual efforts made to extinguish a fire in a coal mine in Pennsylvania, which was in progress in 1858. It says: The miners had as yet had no experience, and a very simple, in fact entirely too simple, means of extinguishing the fire was adopted.

A dam of timber was built across the gangway, of but little more strength than a partition between two rooms. This was intended to retain the water and back it upon the fire, which would then certainly be extinguished by it. The theory was good, but, unfortunately, when the water rose to a considerable height, the dam gave way before the pressure. A second dam was immediately erected, but met with the same fate. It was then decided to build a dam which could not be hurst by all the pressure that could be brought to bear on it by the waters of the mine. Four feet were cut out of the solid coal in the top, sides, and bottom of the gangway, and a solid structure of oak, strong as a canal lock, was erected, and clay packed in behind it for the space of ten feet. The water backed up against this, but now the water was not the agent of destruction. The fire had made a detour through the coal, and had enveloped the dam on all sides, save one, and on that was the water. No human structure could exist in such a conflict of the elements. It was earth against fire, water and air, and earth succumbed. The dam having given away, the fire soon reached the mouth of the slope, and the hopes of extinguishing it were given up. Since that time the mine has been closed. The fire will soon burn out, but will certainly not be extinguished in any other way. Occasionally small tracts of land fell into the fiery furnace below. The effects of the fire and its accompanying heat are almost as well shown here as at Vesuvius or Aetna. The rocks are baked, and are of many shades of color; they have changed their stratified position, and are inclining in every direction. But perhaps the most interesting of all are the changes wrought in the rocks containing iron pyrites. The pyrites have been heated in the proximity of steam, which causes them to be soluble in water; they have then been dissolved out of the rocks, leaving perfectly cubical, glazed cavities in the solid rock, giving to it a honeycombed appearance.

CALIFORNIA GEOLOGICAL SURVEY.—The Loudon *Saturday Review*, of June 24th, gives a very flattering notice of our State Survey, which we are obliged to condense. It says: Often as we have noted the important and elaborate works compiled by official authority, at the public expense, whether by State or Federal Government, on subjects which in other countries, and especially in England, are left to the disinterested and unremunerated industry and zeal of individual men of science or of voluntary societies, we do not remember any series equal in its prospective extent, and in promise of value and completeness, to the so-called "Geological Survey of the State of California." That survey, "though called geological, was intended to embrace the natural history and topography of the State, as well as its geology." Conceive such a work undertaken in this country at the public expense, and carried out on a scale of which absolute perfection would appear to be the aim, and exhaustion of materials the only limit, by the co-operation of the ablest men in each branch of knowledge! Of the manner in which the work ordered by the State of California is being executed, we have an example before us. If each department of Natural History is to be completed in the same style, the work will be one of the most perfect, in relation to its limited scope, that the world has seen. \* \* \* The elaborateness of the work, and the pains-taking visible in its execution, are remarkable; and having been submitted to the revision of eminent ornithologists, its accuracy may probably be relied on. This specimen will certainly induce all who see it to watch with interest and curiosity for the other volumes of the series; while the example of Californian liberality may be commended to the consideration of certain highly-placed and influential English "Liberals."



## New Publications.

**SORGHUM AND ITS PRODUCTS.**—An account of Recent Investigations concerning the Value of Sorghum in Sugar Production, together with a Description of a New Method of Making Sugar and Refined Syrup from this Plant. Adapted to Common Use. By F. L. Stewart. Philadelphia: J. B. Lippincott & Co., 1867. 8vo., pp. 240. For sale by Dewey & Co., 8 F.

The supply of Southern cane sugar has been gradually decreasing of late years, while the demand for sugar is continually increasing. As the sugar cane cannot be grown except on a limited belt of territory along the shore of the Gulf of Mexico, other sources of supply have been sought. The Northern sugar maple is utterly inadequate. The manufacture of beet sugar has not been fully tested throughout the United States, although we have great hopes in California of its success, and we may here allude to articles in the Press on melon sugar. But the greatest attention of the country generally has been called to a plant which seems as adequate to supply us in futuro with sugar, as, in the few years since its introduction, it has proved itself capable of providing half the tables in the land with a rich and palatable syrup. This plant is the sorghum. It is called by botanists the *sorghum saccharatum*, all the different kinds being recognized as varieties of one species.

The publication of this volume comes therefore most opportunely. It is written for the benefit chiefly of the farmers and planters who foster this branch of industry, and it is written in such a manner that they can understand and use its contents. It is comprehensive in its scope, treating of the method of planting and cultivation, with full instructions at every stage of the process, of manures, soils, effects of climates, harvesting and storing the cane, the process of manufacture, description of mills, re-agents and processes, etc., etc. It treats also of other sugar producing plants.

**THE ILLUSTRATED HORSE DOCTOR.**—Being an accurate and detailed account of the various diseases to which the Equine Race are subjected, together with the Latest Mode of Treatment, and all the Requisite Prescriptions. Written in Plain English. With over 400 Pictorial Representations. By Edward Mayhew M. R. C. V. S., Philadelphia: J. B. Lippincott & Co., 1871. 8vo., pp. 522. For sale by Dewey & Co.

In this book, which is lavishly illustrated, Mr. Mayhew has sought to give to the reader directions which will direct the uninitiated in the primary measures necessary to meet the progress of disease, and which, when professional assistance could not be obtained, might even instruct the novice how to treat equine disorders in such a manner as would afford a reasonable prospect of success. He has also sought to show that cruelty is an extravagant indulgence. He says:

In the writer's conviction, humanity toward animals should be more commonly practiced—if not from any higher motive, because it is certainly the truest economy. To make this fact plain is the intention of the present publication. To prove that horses are gifted with something beyond the mere sensation which is common to all moving things, is the object of the present work. To convince the public, by appealing to the eye and to the understanding through the means of engravings and of letter-press, that the equine race inherit higher feelings than the vast majority of mankind are prepared to admit, is the purpose of the book now in the hands of the reader. To demonstrate how closely nature has associated man and horse in their liabilities and in their diseases—to induce men, by informing their sympathies, to treat more tenderly the timid life which is disposed to serve and is also willing to love them—is the highest reward the author of the following pages can picture to himself.

**CROFUTT'S TRANS-CONTINENTAL TOURIST'S GUIDE**, containing a full and authentic description of over 500 Towns, Villages, Stations, Government Ports and Camps, Mountains, Lakes, Rivers, Sulphur, Soda and Hot Springs, Scenery, Watering Places, Summer Resorts; where to look for and hunt the Buffalo, Antelope, Deer and other game; Trout Fishing, etc., etc. In fact, to tell you what is worth seeing—where to see it—where to go—how to go—and who to stop with while passing along the Union Pacific Railroad, Central Pacific Railroad of Cal., their Branches and Connections by Stage and Water from the Atlantic to the Pacific Ocean. Sold by periodical dealers throughout the United States and in European cities. Sent prepaid by Dewey & Co. for 75 cents; bound, \$1.25.

The above title gives a description of the character of the third volume and second annual revise of this progressive publication, edited by Geo. A. Crofutt, publisher, who has spent years of active and adventurous life in the heart of the wild country portrayed by him in a natural and pleas-

ing style, not in the least dry to the traveller on his way or the home reader who is made to roam with truthful fancy over the longest and most excitingly interesting railway line in the world. Mr. Crofutt makes this publication his regular business, passing over the route and adding new material and improvements to his work constantly. It is now illustrated by over forty engravings. A large and complete colored lithograph map of the world shows the principal routes of travel, and very prominently the lines of a voyage around the world and time and cost of the only truly round trip which travelers make. The map is worth more than the price of the book, for wall or pocket use. We have a bound copy worthy of any library, and must say this book differs from many "guides" in being worthy of preservation and worth buying to those who do not travel the route.

## Lake Superior Iron Mines.

We have received a very interesting pamphlet on the mines and furnaces of the Lake Superior Iron District, written by A. P. Swineford, the able editor of the *Marquette Mining Journal*. A few items from the work may interest our readers.

The iron ores are generally found in hills, rising from 100 to 500 feet above the level of the surrounding country. These hills are simply immense deposits of iron ore, though partially or wholly covered by layers of earth and rock. The ores are also found in the valley, but where so found are usually covered with a deep drift, which renders their extraction more difficult.

There are five varieties of ore: specular hematite, yielding 60 to 70 per cent. of slightly red-short iron; soft hematite, yielding about 55 per cent.; magnetic ore; "flag ore," a slaty, siliceous hematite; and a siliceous ore containing a variable amount of oxide of manganese.

There are 24 mines in operation, 16 blast furnaces, and one rolling mill. All but one furnace run on charcoal. All are hot blast and all but three have steam power. From 1856 to 1870, inclusive, there were produced 3,771,939 tons of ore and 243,460 tons of pig iron, valued at \$29,069,883. The average cost of extracting the ore is estimated at \$2 per ton.

The work gives a history of the district, and contains throughout interesting and valuable matter.

**TULARE COUNTY SODA SPRINGS.**—A correspondent of the *Bulletin* describes the McRelvey soda spring, situated on the north side of the south fork of Tule river, which delivers about sixty gallons of soda water per hour. It bubbles up continuously, is as strong as almost any one would wish, and too strong for some, until they let it remain in the cup a moment, and, I think, quite as good as artificial soda water, if sweetened with syrup, though most people prefer it without sweetening. It contains some iron, but not enough to spoil the taste. There are several other springs near by, some of which I think contain sulphur. There is also a spring on the north fork of Tule river, where, I am informed, hotel accommodations are to be had this summer. They call it Mount Tahor Soda Spring. It is not so strong with gas, but has more sulphur in it. With these healthy plains to live on in winter, and the soda springs as a summer resort, settlers will yet settle upon and irrigate this land, making Tulare county the Paradise of California. We have no mosquitoes, fleas or other pests of that kind to bother us.

**THE CALIFORNIA ELASTIC CAR WHEEL.**—We have seen several certificates of recommendation for the above invention of Dr. A. F. Cooper of this city. His wheels, originally illustrated in the *SCIENTIFIC PRESS*, have been in use for over twelve months, and the endorsements of their merits for utility and durability are by officials of railroads leading out of Boston, where the inventor now resides.

**POISON IN THE CLOTH.**—A dressmaker was poisoned to death a few weeks ago by making up a green tarlatan dress. So much of the arsenic entered the pores of her skin that she died a few days afterward.

## GOOD HEALTH.

## Conditions of Comfort.

Every day we meet with persons who in their families are cross, ill-natured, dissatisfied, hating fault with everybody and everything, whose first greeting in the breakfast room is a complaint, whose conversation seldom fails to end in an enumeration of difficulties and hardships, whose last word at night is an angry growl.

If you can get such persons to reason on the subject, they will acknowledge that there is some "want" at the bottom of it; the "want" of a better house, a finer dress, a more handsome equipage, a more dutiful child, a more provident husband, a more cleanly, or systematic, or domestic wife. At one time it is a "wretched cook," which stands between them and the sun; or a lazy house-servant, or an impertinent carriage driver.

The want of more money than Providence has thought proper to bestow, will be found to embrace all these things. Such persons may feel assured that people who cannot really make themselves comfortable in any one set of ordinary circumstances, would not be so under any other. A man who has a canker eating out his heart, will carry it with him wherever he goes; and if it be a spiritual canker, whether of envy, habitual discontent, unbridled ill-nature, it would go with the gold, and rust out all its brightness. Whatever a man is to-day with a last dollar, he will be radically, essentially, to-morrow with a million, unless the heart is changed.

Stop, reader; that is not the whole truth, for the whole truth has something of the terrible in it. Whatever of an undesirable disposition a man has to-day without money, he will have to-morrow to an exaggerated extent, unless the heart is changed; the miser will be more miserly; the drunkard more drunken; the debauchee more debauched; the fretful still more complaining.

If you are not comfortable, not happy now, under the circumstances which surround you, and wish to be more comfortable, more happy, your first step should be to seek a change of heart, of disposition, and then the other things will follow—without the greater wealth! And having the moral comfort, bodily health will follow apiece, to the extent of your using rational means. Bodily comfort, or health, and mental comfort have on one another the most powerful reactions; neither can be perfect without the other, at least, approximate to it; in short—Cultivate health and a good heart; for with these you may be comfortable without a farthing; without them never, though you may possess millions!—*Hall's Jour. of Health.*

## Medicinal Qualities of Pumpkins.

At a recent meeting of the the New York Farmers' Club, a correspondent wrote of the virtues of the pumpkin, giving the following instance of its value for inflammatory rheumatism:—A woman's arm was swelled to an enormous size and painfully inflamed. A poultice was made of stewed pumpkins, which was renewed every fifteen minutes, and in a short time produced a perfect cure. The fever drawn out by the poultices made them extremely offensive, as they were taken off. I knew a man cured of severe inflammation of the bowels by the same kind of application. I think such subjects as this proper for discussion in a farmers' club.

Dr. Snodgrass:—I have no doubt pumpkins make a good poultice. Whatever holds warmth best is the most suitable.

Dr. Smith:—In my travels in Syria I found pumpkin seeds almost universally eaten by the people on account of their supposed medical qualities—not because they are diuretic, but as an antidote against animalcule which infest the bowels. They are sold in the streets as apples and nuts are here. It is a medical fact that persons have been cured of tapeworm by the use of pumpkin seeds. The outer skin being removed, the meats are bruised in a mortar, into an oily, pasty mass. It is swallowed by the patient after fasting some hours, and it takes the place of chyle in the stomach, and the tapeworm lets go its hold on the membrane and becomes gorged with this substance and in some measure probably torpid. Then a large dose of castor oil is administered, and the worms are ejected before they are able to renew their hold.

**SINGULAR CASE OF BLOOD POISONING IN BOSTON.**—Mr. John Suow, engaged in the fish business on Commercial wharf, recently had the misfortune to cut the top of the thumb on his right hand with a large and sharp knife which he was using. After applying a simple dressing to the wound, which bled profusely at the time, scarcely anything else was done to it, and Mr. Suow continued to attend to his business. On returning home last Wednesday evening he complained of severe pain in his hand and arm. During the night the severity of the pain increased, and inflammation setting in. Dr. Hall was summoned, who, after making a careful examination, discovered that the matter which had formed around the wound had been absorbed by the blood and consequently was circulating through the patient's system. The physician treated the case in the usual manner, but without any beneficial results, and the man continued to suffer apparently

in great agony until last Saturday night, when death ensued. A consultation was held by several medical gentlemen, who stated that death resulted from pyæmia.—*Boston Transcript.*

## Sunshine in Dwellings.

The time will very likely come when sunshine, or sunlight, will be so utilized as to be the entire remedy used for very many diseases. That it is a wonderful vitalizer, none can doubt who know anything about it.

But how many houses are constructed with a view to getting all the sunshine possible, especially when so much needed as in winter and spring? The living, or sitting-room, at these seasons of the year, at least, should have a full southern exposure, with large windows to let in the sunshine. Sleeping rooms, wardrobes, closets, passage ways, should receive the cleansing, vivifying influence of the sun. Sickly persons should court the sunshine as much as possible,—sit in it, lie in it, luxuriate in it. It doesn't cost anything, only appreciation.

A room warmed neither by the sun nor by fire, is unhealthy, and not fit for human habitation. It is a poor theory that sends men, women or children off into a cold room to sleep, on health principles, when warmth has been excluded for a day or a week, or perhaps months. The change in the temperature of a room, having both fire and sunshine, after the sun goes down, is exceedingly marked. A perceptible chill is felt.—*Ec.*

## To Avoid the Ague.

The first suggestion, of course, is to leave those districts where this troublesome complaint prevails. Sometimes, however, one's residence cannot well be changed. To persons so circumstanced, there are preventions by the use of which the majority might generally escape it, which are referred to in the *Journal of Health* as follows:

1. Avoid exposing themselves to the malarial air after sunset and before sunrise.
2. Occupy rooms at night on the sunny side of the house and up stairs.
3. Build a fire in the house as soon as the dew begins to fall. The heat of the fire will do much to kill the malaria.
4. Keep the skin healthy and active by a thorough bath every day on rising, in a warm room, with sufficient friction to produce a healthy reaction.
5. Keep the bowels open by a proper diet. In nine cases out of ten the cause of ague would be easily overcome if the depurating organs were not overtaxed and morbid matters allowed to accumulate in the system to oppress it.

**WHAT IS THE CAUSE OF SO MUCH LOSS OF LIFE.**—What is the deeper cause of this wide spread and lamentable destruction of human life; and, if remediable, how is it to be remedied? Obviously, the cause is want of the mental capacity of self-protection, and the sole remedy is to supply that want, which is the true work of education. We hear of the instinct of self-preservation, but the idea is erroneous; there is an instinct of love of life, but self-preservation is an affair of the reason and of knowledge. Again, there is much said about the injurious consequences of breaking the physical laws, but this also is a mistaken notion. It is not the physical laws that are broken in these cases, but the laws of reason; while the great mass of accidents from which people suffer, are simply the penal consequences of loose thinking.

**WORTHY OF CONSULTATION.**—The "*Manufacturer and Builder*" says that the best article for spectacles is crown-glass. Glasses of Brazilian pebble transmit to the eye the rays of heat, which form 70 per cent. of solar light and much more of artificial lights. Good crown-glass, free from lead, is much less permeable to heat rays and therefore less injurious.

**MOST HEALTHFUL SEAT IN A CAR.**—Other things being equal, the forward seats in a street or railway car are the most healthful. The forward motion of the car causes a current of air backward, carrying with it the exhalations from the lungs of the forward passengers. In all cases avoid as much as possible inhaling another's "breath."

**LEMON FOR A COUGH.**—Roast the lemon very carefully without burning it; when it is thoroughly hot, cut and squeeze into a cup upon three ounces of sugar, finely powdered. Take a spoonful whenever your cough troubles you. It is good and agreeable to the taste. Rarely has it been known to fail of giving relief.



# Scientific Press.

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San Francisco:

Saturday Morning, July 29, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, July 26, 1871.—Legal Tenders buying, 89½; selling, 90. Gold in New York to-day 112½.

## Table of Contents.

Improvement in Sewing Machines; Breech-Loading Rifle, Ill.; Swamp and Overflowed Lands; Santa Cruz Railroad.....	49
MECHANICAL PROGRESS.—Steam Type-Setting Machine; Balloon Compass; Automatic Telegraph; Ferrie's Blast Furnace; Burden Horse Shoe; Slate for Engraving.....	50
SCIENTIFIC PROGRESS.—Metals Precipitated from Solutions by Sulphides, Gold and Silver Deposits; Microscopic Character of Iron and Steel; Wyoming Fossils; Extraordinary Railroad Iron; etc.....	50
Trip to Colorado, Ill.; Loss of Quicksilver; Mines at White Pine.....	51
MINING SUMMARY.—Mining Shareholders' Directory; Mining Stocks; Market Rates.....	52-53
List of Patents; State University; Yosemite Valley; Asphaltum Beds; Coal Mine on Fire; Cal. Geol. Survey.....	54
New Publications; Lake Superior Iron Mines; Tulare County Soda Springs; Medicinal Qualities of Pumpkins; Blood Poisoning; Ague.....	55
Destructive Fire; New Quartz Mill; Chas. Western; Trouble at Amador; Natural Occurrence of Precious Metals; Mining Ditches; Academy of Sciences; New Mineral.....	56
Penman's Assistant, Ill.; Bankart's Roasting Furnace, Ill.; Petrified Forest; Prospecting; Artesian Wells.....	57
To Clean Marble; Tomato Beer; To Green Cucumbers; Domestic Receipts; Mechanical Hints.....	58
Guide and Catalogue of the Fair.....	60

## A Destructive Fire.

On Saturday last a destructive fire occurred among the manufacturing establishments on Fremont and Mission streets. The buildings here being occupied to a large extent by wood-workers, the fire rapidly made headway and was only overcome after a large amount of ground had been burned over.

The loss of the Mechanics' Mill, whose buildings, machinery and stock on hand were completely destroyed, is set down as \$40,000. Howland & Co.'s ore-reducing works were also destroyed, and the loss here is given as \$50,000. B. F. Freeman, stair-builder, lost machinery, patterns, etc., of the value of \$10,000. The fire extended to the Pacific Boiler Works, which lost stock and machinery to the amount of \$10,000. J. M. Stockman lost \$7,000 worth of patterns, machinery and stock.

The largest loss, however, was that of Garratt's brass foundry, occupying four buildings, including foundry, bell foundry, finishing shop, and store house. This is estimated at nearly \$100,000, insured to the amount of \$17,500. But Garratt & Co. are not easily daunted, and they have already started the erection of buildings, and have commenced casting.

The total estimated loss is given as nearly \$262,000. The insurance was very small, as the rates are high for such establishments. In addition, some 200 workmen have been thrown out of employ, which is a very great hardship at the present time. This last is certainly one of the most deplorable results of the fire.

THE SAN JOAQUIN CANAL is being rapidly pushed ahead. Two miles have already been completed. It will be finished to Grayson in season for next year's crop.

## A New Quartz Mill.

We noticed, sometime ago, a new construction of quartz mill, invented by Mr. Jacob Niswander, of Oakland, and patented through the SCIENTIFIC PRESS Patent Agency. This mill has been constructed at the Fulton Foundry, in this city, and shipped to the mines of the Calaveras M. Co. near the Calaveras Big Trees, where it will be practically tested.

The new principle involved in this device is that of making the quartz rock itself do the grinding which has hitherto been done by the contact of iron surfaces, requiring the frequent renewal of the shoes and dies which were rapidly worn away. A stationary mill-stone made of coarse rock cemented together within three or four heavy wrought hoops lying one above another, supplies the lower grinding surface. As this nether stone is gradually worn away, the hoops are removed one after another, till the stone is entirely worn out and needs to be renewed. Through this lower mill-stone passes a heavy vertical shaft, to which is keyed what answers to the upper mill-stone. This is a drum, four feet in diameter and about fourteen inches broad, divided by the arms which connect the hub with the outer circumference or tire into six compartments. These compartments being filled with loose quartz rocks, and the drum revolving at the rate of sixty to one hundred revolutions per minute, it is expected that the loose rocks of the upper stone will be reduced while grinding to a flour-like powder the pea-sized quartz which comes from the stamps. The advantages of this principle of making the quartz grind itself are that it not only saves the expensive wear of the present iron mills, requiring frequent repairs, many tons of iron shoes and dies being worn out every year, but also secures a purer powder, the pulp being free from iron, which now requires to be separated from the gold.

Mr. Niswander is very confident that his mill will work successfully, and in this opinion a number of experienced millmen concur. The objections to it are purely mechanical, and if these can be obviated there will be an extensive call for the machine. We hope to receive detailed accounts of its working, which we shall be ready to publish as of great interest to the mining community.

TRouble at AMADOR.—There has been more trouble, we are sorry to say, at Sutter Creek, and the book-keeper of the Amador mine and a man represented as a rioter, have been shot fatally. Serious apprehensions are felt, but the news has not been definite enough (up to date of going to press) for us to be able to speak authoritatively on the matter. On Wednesday a fire broke out in the Badger shaft of the Amador mine, but it was extinguished without much damage. The latest accounts represent that quiet prevails again.

CHARLES WESTERN.—Our New York correspondent forwards to us the sad news of the death, on July 9th, of Mr. Charles C. Western, long connected with the New York *Engineering and Mining Journal* and the *Manufacturer and Builder*. Mr. Western was of eminent ability and most amiable character, and was highly esteemed and loved by his friends. He lived in this State, at one period, where he acted successively the parts of miner, of draughtsman and, we believe, of editor. He died at the age of 29, when fortune had begun to smile on his efforts.

ALASKA.—Mr. W. H. Dall has arrived in this city, on his way to Alaska in charge of an expedition organized under the auspices of the U. S. Coast Survey. Prof. W. Harrington, of Michigan University, goes as Astronomer. In addition to examining the other features of the country, deep sea soundings will be made, and the agricultural capabilities of the soil will be tested.

## Natural Occurrence of Precious Metals.

We give on another page the results of investigations as to the reduction of certain metals from their solutions by metallic sulphides. These investigations, made by Mr. Skey, analyst to the Geological Survey of New Zealand, are very interesting; and none the less so from the obvious relation they appear to sustain to the manner in which certain of the native metals are frequently associated. We condense Mr. Skey's remarks on this point:

The great deoxidizing power of sulphides generally upon most gold, silver and platinum salts, as shown by the experiments, renders them so absorbent, as it were, of these metals, that any such solutions traversing a thin vein or reef of the mixed metallic sulphides would, probably, be divested of these metals. Solutions of silver, however, would be little affected in traversing veins of iron pyrites or stibnite, unless gold was also present, when probably some of the silver would be precipitated with the gold by a single chemical substitution. On the other hand, silver would be absorbed readily by veins of galena or inferior sulphides. This agrees with what we find in nature, and the facts stated seem to explain very simply why gold and silver occur always or frequently with certain of the metallic sulphides, and never or rarely with others. Whether or no this is the reason of such association, the facts should be kept in view when attempting to explain the origin of deposits. As yet, any generally received theory has been based on the reducing action of organic matter; but the action of the common sulphides is more rapid and powerful—a single grain of iron pyrites being sufficient to reduce 8 1-6th grains of gold. These researches have opened up some singular chemical reactions. It has appeared that aqueous solutions of oxy-salts of gold, among which we must include the chlorides, for obvious reasons, possess a greater oxidizing power than hitherto contemplated. I think it is a little superior to that of chromic acid. Further, these salts oxidize not only the metals of the sulphides, but also the sulphur; although direct experiments show that neither common (sublimed) sulphur nor sulphur precipitated from solution in alkalies is affected at all by them, even when the auriferous solutions are raised to the boiling point. This vulnerability of combined sulphur, as against its invulnerability when free, suggests the 'greatness of the change which sulphur in itself undergoes in passing to a state of combination. Possibly some voltaic action, facilitating this change, may be caused by these several substances among themselves, in which the gold already reduced would form the negative element; but this does not, of course, explain how the oxidation commenced.

NEW DITCHES IN BUTTE.—The *Chico Northern Enterprise* of July 22d, says: We gather the following items concerning the new ditches now in process of construction in our county. The Cherokee Company have a large force at work and are vigorously pushing forward their ditch. They tap Butte Creek near its head waters; and through a ditch in size seven feet at top, four feet in the bottom, and two and a half feet deep, and of capacity to hold 2,000 inches of water; they design to introduce water to Cherokee Flat and intermediate points. They have in employ 150 men, and have already dug seven miles of ditch. They will have it completed by fall to the Nimshew diggings. The surface and hill mines afford good pay, and will the coming winter engage a large number of miners. The work is under the immediate management of Messrs. Gregory, Pullman & Moore, of Cherokee Flat. The Hendrick Brothers have employed about 200 men on their ditch, leading the waters of the west branch of Feather river into their diggings at Morris Ravine, and intermediate points. They have commenced work on the lower end of the line, and have already completed several miles of the work. Their ditch will measure nine feet top, six feet bottom, and two feet deep. These two works are very important ones, and will revolutionize the mining interests of our county.

POSTAL MONEY ORDERS.—We see that an arrangement has been effected, by which an international money order system will go into effect on the 1st of next October between the U. S. and Great Britain. The limit of a single money order is \$50. It is said that the same system will be extended to other European countries.

## Academy of Sciences.

The regular meeting was held on Monday evening, July 17th. The Proceedings of the New Zealand Institute for 1870, the horsers of Alaska, and photographs of the last volume of the Coast Survey on the Har-sea lion and fur seal at Woodward's gardens were presented.

### A Curious Sponge.

Dr. Blake read a paper on the specimens from Burrard's Inlet, B. C., which were stated to be the bones of a fish. They actually belong to the order of *Protozoa*, class *Spongidae* or sponges. The lower portions of the stems are covered with a horny substance formed of a tough sarcode permeated by tubes, the sides of which are furnished with small pores, the whole surrounding a central axis which forms an internal calcified skeleton and which, by its development and elongation, forms the long stem. The arrangement of the sarcode around the axis, at least in the earlier periods of its growth, is not circular, but has in transverse section somewhat the shape of a Maltese cross. The central axis is formed by concentric calcified layers (as many as 13 have been counted) of a tough chitinous substance. In the specimens received, the greatest thickness is about ¼ inch, and the length of some is 90 inches. At each extremity it tapers to a fine point, the top more particularly being surmounted by a long hair-like prolongation of the chitinous substance. The species is possibly new; at least its previous description is unknown to Dr. Blake. Its generic relations, he thought, would be with *Hyalonema* and *Enplectella*, both Pacific Ocean sponges.

### American Association.

Prof. Davidson read letters and made a report of progress with regard to the invitation to the American Association for the Advancement of Science. Half-fares from Omaha would be allowed, and a liberal disposition was evinced on the part of the merchants here. The matter was discussed at length, and the Trustees were requested to consummate the invitation.

Prof. Davidson made a correction in the Proceedings of the Academy for 1870. In Vol. IV. Part 3. p 122, l. 8 from bottom, read *bright* instead of *gray*.

A live "King Snake," *Ptyophis catenifer*, was presented by Dr. Stout, who proposed making a demonstration of its general anatomy for the Academy.

Prof. Smith, M. D., of Sydney, Vice-President of the Royal Society of New South Wales was introduced to the society.

## A New (?) Mineral.

The following letter to us explains itself. In your issue of July 8th, 1871, I read a notice from Battle Mountain concerning an interesting mineral, very similar to malachite, when polished with a handkerchief, found in a copper mine near Battle Mountain. You doubtless noticed its property of adhering strongly to the tongue as if it were chiefly clay. This induced me to suppose that it was an aluminate, but an analysis, which I made several months ago, showed that it is a silicate of copper, containing about 30 per cent. of copper. In appearance it differs so much from the known silicate, that it might be considered, so far as my knowledge goes, a new variety of silicate of copper. I do not remember now the quantitative composition of this mineral; but will hand it over to you immediately on my return. I am very thankful to F. H. for a sample of this ore. G. KUSTEL.

Ellsworth, July 19, 1871.

QUICKSILVER.—A correspondent of the *Call* has visited the Summit Quicksilver mine, 16 miles north-west of Napa City, and 4 miles south-west of St. Helena. There is a tunnel 450 feet long which cuts a body of ore 70 feet thick. A shaft, 145 feet deep, strikes the tunnel about 400 feet in. The mine is owned by the Whitton Brothers. The croppings extend 1,000 feet. A great deal of the ore "will yield 60 and even 70 per cent." So says the writer. We feel perfectly safe in predicting that the last statement will exceed the results attained by several hundred per cent. \* \* \* The *Vallejo Recorder* says that Mr. John Brownlie, of Vallejo, will soon erect kilns for treating the quicksilver ore which exists on his ranch.



### The Penman's Assistant.

We give below an illustration of a device, which, although its usefulness may be doubted by many on first thought, is yet said by numerous experienced teachers to have been proved to be of great use.

The object of the device is to teach the pupil the correct position of the hand and the correct method of writing. It consists essentially of an egg-shaped ball which is held by the third and fourth fingers in the palm of the hand, in a ring for maintaining the proper angle to the pen holder, and in the thumb and finger rest.

Numerous certificates are given as to the value of the device, of the great assistance to children in removing the difficulty of cramped hands and of manifold unsuccessful attempts before any progress in writing is attained. And for older persons also, we have the statement of business men that it is the greatest help, especially for those who have much writing to do.

We have before us now testimonials from the Principals of the well-known Mills' Seminary, of the Principal and Trustees of the Benicia Public School, and of other persons on the coast. These endorse the "assistant" so warmly, that the device must have proved itself of great value to them in teaching others and in writing themselves. Rev. O. P. Fitzger-



ald, State Superintendent of Instruction, endorses it as "one of the best inventions of the day."

Messrs. Moore & Weinmann, (P. O. Box 1915, S. F.) are the general agents for the Assistant on this coast. They are also agents for Eastman's copy hooks, pens, etc. Perhaps the best endorsement needed for them is the great success achieved by Mr. Eastman in his commercial college in Poughkeepsie, N. Y., which is, we believe, one of the largest institutions of the kind in this country.

### Bankart's Roasting Furnace.

There have been collected, at various times, in Austin, Nevada, numbers of men of pre-eminent theoretical as well as practical knowledge. To these men we are indebted for much valuable information of the various resources and conditions of that State, and, to a very great extent, for improvement, in the treatment of ores.

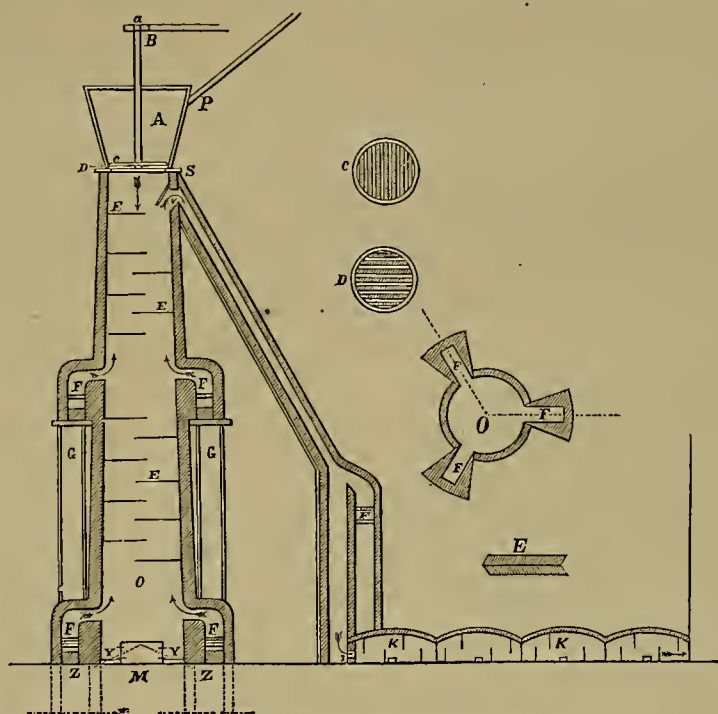
There comes now from Austin a new furnace for roasting "rebellious" silver ores. The inventor is Mr. I. Hubert Bankart. This gentleman claims that his furnace will treat silver ores which hold antimony, lead, zinc or other base metals, in the most satisfactory manner, chloridizing the silver to a very high percentage, treating large quantities in a very short space of time with a small consumption of fuel, and avoiding the heavy loss sustained by the pulverulent matters being carried by the draft through the flues and stack into the atmosphere. The necessary oxidizing and chloridizing action is effected, he says, by the aid of copper fans revolving on a shaft working in a gudgeon, and propelled from the outside of the furnace by a crank connected with the engine, so

that the ore with its complement of salt, dropping from the hopper, first upon one fan, then thrown on to the next, and so on, alternately, will have every particle equally exposed to the action of the flame, and thus the sulphur will be liberated and the silver thoroughly chloridized, before the hearth is finally reached.

The following illustration and description will explain the construction and working of the furnace:

The furnace consists of a circular shaft, *O*, of common brick or stone, lined with fire brick or slate. Over this is placed a closed, self-feeding hopper, *A*, to the bottom of which is secured a circular plate, *D*, of boiler iron or copper, which is slotted in one direction so as to form parallel bars about an inch wide. Above this plate is a revolving plate, *C*, of similar construction, attached to the lower end of a vertical shaft, *B*, which bears in the fixed plate and can be moved at any required speed by means of belting, or other device, at the top.

In the frame work of this hopper, and underneath the fixed plate, is a damper, *S*, which can be closed or opened at will by the workmen drawing the charge. A screw carries the ore from the mixing chamber to the hopper, as denoted by *P*.



BANKART'S FURNACE FOR ROASTING SILVER ORES.

There are three fire-places, *F*, at equal distances from one another around the shaft, about five feet from the bottom, and three others, *F*, similarly arranged, about 30 feet from the top. The latter are supported on hollow iron pillars, *G*. The fans, *E*, are placed alternately, 2½ feet above one another, and project slightly beyond the center of the shaft, to prevent the direct and vertical ascent of the flame.

The fume flue has a lip or apron, *r*, to prevent the descending ore from luting, and conveys any escaping particles of dust through the flame of another grate, *F*, to the entrance of the chambers, where it is met by a revolving cylinder (not shown), from which jets of steam constantly issue with a contrary motion to the current of vapor, in order to throw down any escaping ore. From here the fumes pass under the cylinder into chambers, about 4 feet high, with vertical plates or partitions, *K*, attached alternately to the top and bottom.

At the bottom of the shaft, *A*, there is a discharge hole, *M*. Or, preferably, the hearth is inclined, as denoted by the dotted lines, *Y, Y*, so that the ore falls into chambers, *Z*, into which is admitted steam, or water to cool the ore.

The furnace is said to be capable of thoroughly treating 4 tons per hour, with a consumption in 24 hours of 6 or 7 cords of wood (or its equivalent in coke or charcoal), and to require the attendance of only 2 men every 12 hours. Ores can be treated at an entire cost of \$10 per ton.

Application for patents has been made through the SCIENTIFIC PRESS Patent Agency. Further particulars, plans and estimates will be furnished by Mr. I. Hubert Bankart, Austin, Nevada.

### PETRIFIED FOREST IN SISKIYOU COUNTY.

A correspondent of the Marysville Appeal writes from Camp Bidwell, in the north-east corner of California, under date of June 29, giving some interesting facts. He writes thus of a petrified forest near the head of Cedar Creek Cañon: We reached what appeared to have been a grove, containing many trees of different sizes, all fallen and in a perfect state of petrification, and most of them broken into fragmentary blocks, which were scattered over a space of several acres. One tree, perfect in contour, yet a solid stone, two and a half feet in diameter, was exposed entirely above the ground for several feet at the butt, the top lying down the hill and covered with land and earth. The top of one of these trees, containing many knots, being sixteen inches long and eight inches through, weighing some sixty pounds, was secured. The exposed portion of the large tree was not disturbed, hoping, at some future day, to be able to bring away a large section of it entire. Several stumps were also discovered standing erect, but whether or not roots were attached we could not determine, having nothing but a small hand hatchet to excavate with, and all being deeply set in the ground; besides, the afternoon was now far spent, and we had

CLOUD-BURST IN NEVADA.—Day before yesterday, says the *Ter. Enterprise* of July 22, about 5 o'clock in the afternoon, a cloud-hurst occurred toward the head of El Dorado Cañon, Lyon county, some miles south-east of Dayton, which sent an immense flood of water surging down to the Carson. When the huge volume of water entered the river it split into two streams. One of these moved straight toward the Rock Point dam, which is filled up with a great mass of driftwood, while the other turned aside and made a new channel for the river. The dwelling of David Swartz, on the opposite side of the river from Dayton, was for a time in great danger of being swept away. After the flood subsided, it was found that the lower floors were covered to the depth of a foot with slum. The raging waters brought with them, in addition to a great quantity of such trash as would float upon its surface, a great deal of sand and gravel. Some years ago there was a similar cloud-hurst at the head of El Dorado Cañon, which sent boulders of many tons weight trotting down its rocky bed.

PROSPECTING.—Dr. Yates, of Centerville, started last week with a small party on a prospecting tour, having a three-fold object in view, namely to search for minerals, grizzly bears, and the fossil remains of mastodons, elephants, sea-lions, etc. The party will proceed among the Panocho range of mountains, some fifty miles to the south-east of Gilroy. The Doctor has received information that fossil remains of the mastodon and elephant have been found in and near the little valley of Saucelito, and so strong is his passion for such antediluvian relics that not even the knowledge that the vicinity is the rendezvous for some of the most blood-thirsty outlaws on the Pacific Coast is sufficient to deter him from its gratification. The party will go thoroughly provided with all the requisite equipage for camping out and roughing it among the mountains, and for protection and defense against handitti and grizzlies.—*Alameda Gazette* of July 20th.

NORTHERN PACIFIC R. R.—The roads leading to the Red River Valley are literally covered with emigrant wagons, with their usual accompaniments of families, furniture and stock of all kinds. The wagon roads from Sauk Center to St. Peter show daily accessions to the vast caravan wending its way to the fertile regions of Northern Minnesota. The extent of the great incoming tide of humanity can be best estimated on the main road between Alexandria and Pomme de Terre. Two hundred wagons per day pass over this portion of the route northwest, and the camp fires are seldom allowed to go out. A fresh train of emigrants arrives almost as soon as its predecessor has resumed its march.—*St. Paul Pioneer*.

FRUIT DISTILLING.—A Washington telegram, of July 21st, says that E. S. Holmes, the clerk in charge of the section of distillation in the Internal Revenue Bureau, starts for California to-night for the purpose of investigating the manner of fruit distillation in that State. Complaints have recently been made by the vintners of California that the regulations of the Internal Revenue office in relation to that branch of distillation is not applicable to the manner in which it is carried on in that State.

RAMIE.—We yesterday took a look at the Ramie patch of Messrs. Meek & Finch, on Mr. Meek's place near the San Lorenzo creek, and found the plants in a very healthy and thrifty state. Although the plants were set far apart, (six feet we believe,) the ground is well covered with the growth, and some of the plants are five feet in height. These plants were set out last year and from them were taken the plants which were set out on the Hill place, which have not done so well, owing to mismanagement in their planting and cultivation, as Finch informs us. Those competent to judge say that Ramie will be a profitable crop here, when it is properly planted and cultivated.—*Alameda County Advocate*.

A PIONEER ENGINEER.—A New York telegram, of July 25, says: Charles Dyke, engineer on Robert Fulton's first steamer to Albany, died yesterday, aged 85 years. Mr. Dyke also engineered the first steamer down the Ohio and Mississippi rivers to New Orleans.

WATER SPOUT IN NEVADA.—On the evening of July 20, a water spout injured the track of the C. P. R. R. at Granite Point, 18 miles west of Oreana.

COAL.—A new coal bank is reported as discovered near Oysterville, on Yaquina Bay, Oregon.



## DOMESTIC ECONOMY.

### To Clean Marble.

Marble mantles, hearths, table tops, etc., are easily discolored by coal gas, pitchy smoke from pine kindlings, fender rust, grease, ink, etc.; and it is surprising how often, otherwise careful housekeepers will neglect such discoloration, until it is too late to remove it, when it becomes a permanent and unseemly disfiguration. Generally such discolorations, if taken in hand at once, may be removed by a little hot soap and water applied with a plenty of elbow-grease. For ink and other stains a little diluted sulphuric acid may be rubbed on with a cloth, and removed with clean water as soon as the stains disappear. Discoloration from coal smoke may be removed in the same manner; but the application should be made as soon as noticed, or the stains will so penetrate the marble, that any attempt to remove it with acid will so disfigure the marble as to deface it worse than the stain. If the discoloration has penetrated to any considerable depth, the only way is to cover it up, which may be done by the application of a thin stucco made of fine marble-dust. This application gives the marble a pure white coating, without any gloss. The gloss may be secured by varnishing the stucco with a solution of soda or water-glass. This last application forms a very good looking and durable covering and may be also used for renovating old or neglected statuettes, etc.

A WOODEN KITCHEN OR DAIRY FLOOR, or a floor for any other room which you do not wish to carpet, but which it is desirable to keep scrupulously clean, may be prepared with as good a surface or polish as marble, by simply coating it with several applications of water-glass. The cracks and crevices should first be filled up, even with the floor surface, by a putty made of water-glass and gypsum. Four coats of the water-glass will form a hard durable coat, not affected by heat, and but little liable to wear. It will moreover look as bright and handsome as marble, and may be even more easily kept clean. If color is desired, it may be added, in the form of mineral paint, to the last application. A floor prepared in this manner will last six or eight years, and the cost is very small, as the silicate of soda, from which the water-glass is made, is very cheap.

### Tomato Beer.

A Georgia correspondent of the *Southern Planter* tells how to make tomato beer. He says: "Gather the fruit once a week, stem, wash and mash it; strain through a coarse linen bag, and to every gallon of the juice add a pound of good, moist brown sugar.—Let it stand nine days, and then pour it off from the pulp, which will settle in the bottom of the jar. Bottle it closely, and the longer you keep it the better it is when you want to use it. Take a pitcher that will hold as much as you want to use—for my family I use a gallon pitcher—fill it nearly full of fresh sweetened water, add some of the preparation already described, and a few drops of essence of lemon, and you will find it equal to the best lemonade, costing almost nothing. To every gallon of sweetened water I add a half tumbler of beer."

A REFRESHING BEVERAGE.—Dr. Waller Lewis, in describing the precautions against cholera adopted at the General Post Office, in London, Eng., says: "The men employed in sorting letters and newspapers suffer much from thirst, especially in the hot weather, and consequently drink much water while engaged in their duties. Although the Post Office is supplied with excellent water, much diarrhoea was, nevertheless, the result of this practice. To remedy this the officers, clerks and men of all classes have of late been supplied from the medical department with a most agreeable drink, which not only assuages the thirst, but has, moreover, strong antiseptic and anti-diarrhoea properties. It is called orangeade, and is thus composed: Take of dilute sulphuric acid, concen-

trated infusion of orange peel, each twelve drachms; syrup of orange peel, five fluid ounces. This quantity is added to two imperial gallons of water. A large wine-glassful is taken for a draught, mixed with more or less water, according to taste. The officers drank this with pleasure. It is being consumed in large quantities daily, and I am convinced it will be the means of warding off a great deal of sickness."

### How to Green Cucumbers.

There is no way to impart a green color to cucumbers, that would not be injurious to health, except by the use of green leaves, like those from the grape-vine. Possibly sap green, which is a preparation from the juice of huck-thorn berries, would answer the purpose if it could be obtained here. Verdigris can be detected in nearly all the pickles of commerce; but its use is highly objectionable, as it is a poisonous acetate of copper. Pickles may be colored with it if the people place a higher regard on the color of the condiment they eat than on their health. Nearly all the shades of green are produced from some combination of arsenic, but this fact does not prevent the use of them for coloring confectionery. Cannot some one introduce a new fashion in the color of pickles?

NUTS AND CHEESE promote digestion as a general rule; the conditions being that the nuts should be ripe and the cheese old, both to be eaten at the close of dinner; the digestive agent in both is a peculiar oil which has the property of acting chemically on what has been eaten, and thus preparing it for being the more easily appropriated to the purpose of nutrition. Many think that the more solid portions of the nut should not be swallowed. This is an error; those particles of solid matter are not digested, it is true, but they are passed through the system unchanged, and act as a mechanical stimulant to the action of the internal organs, as white mustard-seed swallowed whole are known to do, thus preventing that constipated condition of the system which is so invariably productive of numerous bodily discomforts and dangerous and even fatal forms of disease.

PATCHWORK AND MENTAL CULTIVATION.—We heartily endorse the following from a correspondent of *Hearth and Home*: Farmers' wives have little enough spare time at the most, and any woman who desires to have an intelligent and well informed mind will prefer to spend her leisure hours in trying to get wisdom, instead of wasting them in making patchwork quilts, especially as a clean white spread for the outside covering of a bed, looks nicer, and is in better taste, than all the patchwork quilts in existence.

It is no doubt a good plan for little girls to busy themselves piecing calicoes, but there are very many who have no little girls, and to all such I say, improve your time in reading good books and papers, and cultivating your intellect instead of making "patchwork quilts."

TO WASH WHITE WOOLENS.—Put a kettle of clear soft water on the stove and shave enough soap into it to make a strong suds; let it come to a boil, and pour it over the flannels placed in a tub; let them stand until they are cool enough to handle, and then rub or squeeze slightly and wring out. If they were very dirty, repeat the operation; if not, make a very weak suds, boiling hot, and after it is taken off the fire put in some blueing and proceed as before; then shake well, and bang up to dry. You will find the flannels will not full up and get too small, but will be as soft as when new.

HOW TO KEEP MEAT FRESH.—As farmers are at a distance from meat markets, the following directions for keeping meat may be of use to those that try it: Cut the meat in slices ready to fry. Pack it in a jar in layers, sprinkling with salt and pepper, just enough to make it palatable. Place on the top a thick paper or cloth, with salt half an inch thick. Keep this on all the while. I have kept meat for three weeks in the summer, and the last was as good as the first.—*Rural American*.

TO TAKE GREASE OUT OF CARPETS.—Cover the spots with whiting and let it remain until it becomes saturated with the grease; then scrape it off and cover it with another coat of whiting, and if this does not remove the grease, repeat the application. Three coats of whiting will, in most cases, remove the grease, when it should be brushed off with a clothes brush. So says one who pretends to know.

### Domestic Receipts.

LEMON PIE.—One lemon, one cup of sugar, two eggs, three table-spoonfuls of flour, one cup of milk; grate the rind of the lemon; mix the whole together, leaving out the whites of the eggs; pour in the milk last. Bake in a deep plate lined with pastry. Beat the whites of the eggs to a stiff froth; sweeten with four table-spoonfuls of sugar; put it on the top when baked, and return the pies to the oven and brown lightly.

GINGER STR CAKE.—Three eggs, 1 cup of lard, 3 do molasses, 4 do flour, 2 tea-spoons of saleratus,  $\frac{1}{2}$  cup of cold coffee, 1 tablespoon of ginger.

TO TEST SOAP.—The readiest way to find whether soap will injure the delicate skin of women and children is to test it with the tongue. Good soap, in which the caustic alkali is neutralized by thorough combination with the fat, will not have a sharp taste. The soap used in medicine, and the transparent soaps, are neutral and good. Many toilet soaps, and especially the imitation marbled castile soap, so abundant in the trade, contain too much free alkali. They have not been thoroughly hoiled, and are very sharp. Do not use them upon delicate skins.

ELDER OINTMENT.—Take a double handful of dried elder flowers separated from the stems, and boil them in one quart of water, until it is reduced to half a pint; then strain it, and add to this strong elder tea, two large spoonfuls of melted lard (fresh), two large spoonfuls of melted mutton tallow, and simmer it until the water is all evaporated. This makes an excellent healing ointment.

A BLACKING PASTE FOR BOOTS.—The *Manufacturer & Builder* says:—A good paste for blacking boots is made from twenty parts tincture boneblack, twenty parts syrup, three parts castor oil, one part sulphuric acid, well mixed. A cheaper prescription is ten parts minced potatoes treated with one part strong sulphuric acid, till the whole mass is a lustrous black, then add four parts of boneblack and two parts of any fat, lard or oil.

TO MAKE GROUND PEA CANDY.—Pare, shell, and beat the peas. Take up the candy before it has boiled as much as in the first receipt, and use more butter; stir while boiling. When poured out, mix in the peas. Almonds and grated cocoanut may be used.

### Mechanical Hints.

LUBRICATORS.—Tallow is the best lubricator for wood axletrees, and castor oil for iron. Just enough grease should be applied to the spindle of a wagon to give it a light coating.

RAT AND MICE PROOF HOUSE.—James M. Hartwell, of Colesbrook, N. Y., gives a plan, which he says has proved fully successful.

After the frame of the building is up and boarded, and the partitions for the rooms are made, take some mortar and bricks and lay one or two thicknesses of brick between the lower and upper floors. Then lath and plaster to the floors and put on a narrow mop or washboard, not so high as to have the upper edge come above the bricks, as the rats and mice gnaw in just over or just under the washboards.

THE LARGEST PLANING MILL.—Burlington, Vt., has the largest planing mill in the world. The lumber yard, docks, sheds, mills, etc., of the firm cover an area of nearly fifty acres, and in this area there are about seven miles of plank road. To carry on this establishment from 400 to 500 men and boys are employed.

IMPROVED PASTE FOR WALL.—A new form of paste for attaching paper bangings to walls, and one which, besides possessing the merit of cheapness has the advantage of preventing the paper from separating or peeling off, is prepared by first softening 18 pounds of finely powdered bole (fatty clay) in water, and then draining off the surplus water from the mass. One and a quarter pounds of glue are next to be boiled into glue water, and the bole and two pounds of gypsum are then stirred in, and the whole mass forced through a sieve by means of a brush. This is afterward diluted with water to the condition of a thin paste or dressing, when it is ready for use. This paste is not only much cheaper than the ordinary floor paste, but it has the advantage of adhering better to whitewashed surfaces, especially to walls that have been coated over several times, and from which the coating has not been carefully removed. In some cases it is advisable, when putting fine paper on old walls, to coat them by means of this paste with a ground paper, and to apply the paper hanging itself to this with the ordinary paste.

## LIFE THOUGHTS.

TENDERNESS, says a sentimental philosopher, is passion in repose.

DESIRE is a tree in leaf, hope is a tree in flower, and enjoyment is a tree in fruit.

WHAT a pity that common sense, for want of use, should have become uncouth.

EXTERIOR beauty is a recommendation written with such pale ink, that time effaces it.

It often happens that they are the best people whose characters have been most injured by slander, as we often find that to be the sweetest fruit which the birds have been pecking at.

SOME people are afraid of anything like joy in religion. They have none of themselves, and they do not love to see it in others. Their religion is something like the stars—very high, and very clear, but very cold.

### Golden Words for the Young.

Peter Cooper, of New York, now eighty years old, and one of the most successful business men in the country, is, as is well known, the founder of the great Institution in New York which bears his name. On the occasion of a recent gathering there of the young men who have enjoyed the advantages of his noble generosity, Mr. Cooper made the following address, every line of which is made up of golden words, which should be read and pondered by every young man in the country:

While yet a child, I learned that the "hand of the diligent maketh rich," and whatever of wealth I have achieved, has been due primarily to habits of patient industry formed at the outset of my career. I soon learned that "waste makes want," and I therefore saved what I earned; and, by taking "stitches in time," guarded against the loss which unavoidably attends upon neglect and want of foresight. It did not take long for me to learn that drunkenness was the parent of the larger portion of the poverty, vice and crime which afflict the American people; and hence, until advancing age seemed to demand moderate stimulants, I carefully avoided alcoholic liquors as the greatest curse of the young, and the most deadly foe to domestic happiness and the public welfare.

Next, I observed that most of the shipwrecks in life were due to debts hastily contracted, and out of proportion to the means of the debtor; hence I always avoided debt, and endeavored to keep some ready money on hand, to avail of a favorable opportunity for its profitable use. With economy and industry it is easy to do this in this favored land, and in my case the result has been that, amid all the financial revulsions through which I have passed, no obligation of mine has ever been a day in arrear. Debt is a slavery which every young man ought to avoid, or if assumed, ought not to endure for one day beyond the shortest time necessary to set him free. Shunning intemperance and debt, and practicing industry, rigid economy and self-denial, it was easy to be honest, and to acquire such knowledge as the opportunities of this city offered in the days of my youth.

I was cheered, comforted, sustained and encouraged by the greatest of human blessings, a diligent, wise, industrious, faithful and affectionate wife, aided by the earnest sympathy and active coöperation of my children, who justly regarded as the richest portion of their inheritance, that portion of my wealth which I desired to consecrate to the public welfare. Hence my last lesson for the young is to marry at the proper age, when, and not before, they can see their way to a decent and comfortable support, and thus fulfill the first law of nature with a high and holy sense of its bappiness, and its duties, the greatest and most serious in the path of life. Love and duty I have ever found to be the "passwords" of all that is true and noble in life, and when they are separated, the fires on the family altar die out, and life loses all its charms, never to be compensated by the false jewels which are often worn in the public gaze.

Reform, to be of any permanent value, must be based upon personal virtue, not force; and it seems to me that the millennium will not be far off when each individual shall set about reforming himself, rather than society, and conforming his life to the great law of loving God and his fellow men.

PETER COOPER.



## Business Cards.

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For sale—Mahogany, Spanish Cedar, and other Woods.

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F. E. WEYGANT & H. C. PARTIDGE,  
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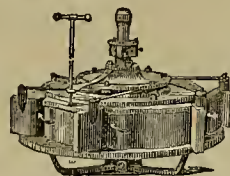
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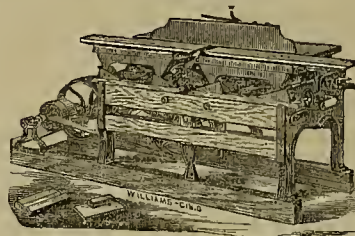
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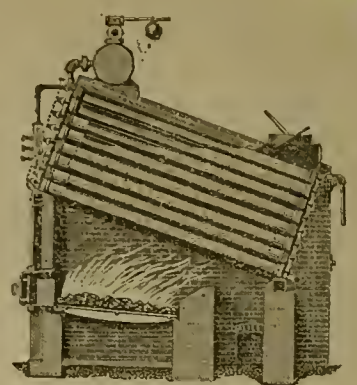
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American, July 24th, Nov. 20th and 27th, 1869; Engi-  
neering and Mining Journal, Jan. 17th, 1871; Journal of  
the Franklin Institute, Philadelphia, June, 1870. For  
Circulars descriptive, and Prices, send stamp to  
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## Travelers' Guide.

## CENTRAL PACIFIC RAILROAD.

Passenger Sunday except'd	Express Train Daily.	JULY 9, 1871.	Express Train Sundays excepted	Passenger Sundays excepted
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:54 P.M.
5:30 P.M.	7:30 A.M.	San Jose.....	5:30 P.M.	12:15 P.M.
5:48 P.M.	12:21 P.M.	Stockton.....	1:25 P.M.	8:35 P.M.
9:35 P.M.	2:10 P.M.	Sacramento.....	11:4 A.M.	7:00 A.M.
	4:10 P.M.	Marysville.....	9:10 A.M.	
	7:50 P.M.	Seaside.....	5:40 A.M.	
	2:30 P.M.	Sacramento.....	11:45 A.M.	
	5:25 P.M.	Colfax.....	8:45 A.M.	
	1:15 A.M.	Reno.....	1:00 A.M.	
	9:10 A.M.	Winnemucca.....	4:05 P.M.	
	12:00 M.	Battle Mountain.....	1:25 P.M.	
	4:40 P.M.	Elko.....	8:45 A.M.	
	6:20 A.M.	Orden.....	5:20 P.M.	

**SAN JOSE BRANCH.**—LEAVE SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 3 p. m. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily  
(except Sundays).

**OAKLAND BRANCH.**—LEAVE SAN FRANCISCO, \*6:50,  
8:00, 9:10, 10:20 and 11:10 a. m. 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
LEAVE BROCKTON, \*5:15, \*6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.

LEAVE OAKLAND, \*5:25, \*6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

**ALAMEDA BRANCH.**—LEAVE SAN FRANCISCO, 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruit Vale only).  
LEAVE HEWLETT, \*4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
LEAVE FRUIT VALE, \*5:25, 7:35, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.

\*Trains do not run Sundays.  
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No. 108 Stockton street, S. F., Cal.



## Guide and Catalogue of the Fair.

We see that Mr. Jacob Price is at work collating material and soliciting advertisements for his Visitors' Guide and Catalogue of the Mechanics' Fair. This work is to be published under the supervision of the Board of Managers.

The idea is a good one, and we hope that liberal support will be given. The work will contain a description of every article on exhibition, and will be furnished to visitors at as low a rate as possible, not exceeding fifty cents per copy—probably not more than twenty-five cents; copies will also be rented at some very low figure by the day to such persons as will not purchase otherwise, it being the object of the publishers to dispose of them at the very lowest paying rate. The work will be published in installments for the first three or four days of the Fair, and will be kept up as close as possible to the arrival of goods each day. It will be issued in complete form about the sixth or seventh day of the Fair.

According to the official report of the last exhibition, eighty thousand visitors were present. The coming fair will be on a much larger scale than ever before, and will be visited by a much larger number of persons. People are finding out that the trouble caused them in furnishing articles for exhibition is amply repaid by the attention called to their exhibits, so that exhibiting is an exceedingly good financial speculation. In the same way, the opportunities afforded to the advertiser by the proper means at such fairs, are very favorable in a pecuniary point of view.

We have spoken of such a work as a good medium for advertisers. But a properly arranged guide and catalogue is a benefit to others. The Fair gains by it, in that the collection of exhibits is given in good form and the descriptions are sent far and wide. The exhibitors gain in the attention attracted to their articles. The visitors are also the gainers by the convenience of having the whole exhibition presented to them, as it were, on a small scale, so that they know what there is present, and where it is; and when they see anything which interests them, they can know all about it with infinitely less trouble than if they, in common with many others, must be continually asking questions.

For many such reasons, we recommend the guide to advertisers, exhibitors and visitors. Being under the supervision of the Board of Managers, we believe that the work will be carried out well. And we speak also a kind reception of the solicitors, who, as far as we have seen, are an exceedingly gentlemanly set of fellows. Mr. Price, by the way, has his office at Baker & Hamilton's, 17 Front street.

**A DESERTED NEVADA VILLAGE.**—The *Eureka Sentinel* tells of a genuine "deserted village" in Danville mining district, some 60 miles south of Eureka. Five or six years ago the village was quite lively, and now "a death-like stillness reigns; not even is this painful quietness relieved by the hooting of an owl or the quack of a buzzard. The doors of the twelve unoccupied log cabins swing listless to and fro at the bidding of the fitful winds. The grass in the deserted streets is now waist high, with no living soul to trample or recuperate upon its fattening virtues. There is a fine stream of water running through the town, and plenty of wood immediately surrounding this depopulated camp." Some one informs the *Sentinel* that he found ore that would mill \$100 per ton.

**LECTURES.**—Mr. B. F. Underwood, who by his writings and lectures has won a large number of friends, will lecture, Saturday and Sunday evenings, before the Mechanic's Institute or Christianity and Free Thought on Naturalism vs. Supernaturalism; and on Sunday morning, at Dashaway Hall, on the Influence of Christianity on Civilization.

**UNDAUNTED ENTERPRISE.**—W. T. Garratt & Co., whose brass foundry was destroyed by fire Saturday afternoon, have bought out the establishment of Wm. H. Moore, on Beal street, taking all his stock, tools and machinery. They will proceed at once to erect new and permanent buildings.

## New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

**PIGEON POINT WOOD AND LUMBER CANAL CO.** San Mateo county.—July 14. Capital stock, \$20,000 in 200 shares. Trustees: L. Colburn, T. H. Hatch and W. B. Carr.

**CLOVERDALE JUNCTION WOOD AND LUMBER CANAL CO.** San Mateo county.—July 17. Capital stock, \$20,000 in 200 shares. Trustees: L. Colburn, T. H. Hatch and W. A. Stewart.

**TIGER S. M. CO.** Yavapai Co., Arizona.—July 19. Capital stock, \$2,400,000 in 2,400 shares. Trustees: W. M. Lent, J. F. Boyd, J. W. Gashweiler, E. J. Cook and G. W. Bowers.

**MAGNET M. CO.**—July 26. Capital stock, \$1,000,000 in 10,000 shares. Trustees: A. J. Moulder, W. H. Raymond and H. Raymond.

**SUNBEAM G. & S. M. CO.** Utah.—July 26. Capital stock, \$220,000 in 2,200 shares. Trustees: E. M. Hall, J. T. Babcock, W. E. Miller, J. Regensburger and H. Palmer.

The following have been recorded in the Secretary of State's office, Sacramento.

**SAN PABLO AND TULARE R. R. CO.**—July 19. Capital stock, \$3,700,000. Directors: L. Stanford, C. P. Huntington, M. Hopkins, E. H. Miller Jr. and C. H. Cummings.

**NORTHERN R. R. CO.**—July 19. Object, to build an air-line railroad from S. F. to Tehama county. Capital stock, \$8,400,000. Directors: L. Stanford, C. P. Huntington, M. Hopkins, E. H. Miller Jr. and C. H. Cummings.

## Meetings and Elections, Etc.

**OVERMAN M. CO.**—July 13. Trustees: M. J. McDonald, J. A. Pritchard, O. H. Bogart, L. Vessari and E. T. Rann.

**MAHOGANY G. & S. M. CO.**—July 17. Capital stock increased from \$602,000 to \$1,000,000 divided into 10,000 shares.

**SOUTH CHARLOT M. CO.**—July 19. Trustees: C. E. McLane (President), Hill Beachey (Vice-President), M. Livingston (Treasurer). Superintendent, J. F. Cassell; Secretary, J. L. King.

**SEATTLE COAL AND TRANSPORTATION CO.**—Trustees: P. Donahue, I. Bluxome, M. W. Allen, H. L. Hutchinson and W. B. Cummings.

**TECUMSEH G. S. & C. M. CO.**—Trustees: J. T. Helmken, J. Greif, F. Schumacher, J. Hahn and J. F. G. Eggers. Secretary, J. Hermann.

**LIVERPOOL COPPER MARKET.**—According to Lewis & Son's Copper Report of July, the Liverpool copper market has been firm and active with large sales during the preceding month. Sales of bars on hand and to arrive amounted to 5,800 tons at \$323.75 up to \$340. The last quotations for ore were \$3.43 to \$4; quicksilver, \$47.50 per flask of 75 lbs.; antimony, French Strai, \$245 to \$250 per ton; tin, \$660 for Straits and \$600 for Peruvian.

**WATER PIPE.**—The *Alta* states that at Rawlins, Wyoming Territory, 20,000 feet of water pipe are in use, made of wood (fir) with a 4-inch bore and sides 3 inches thick, bound with iron bands, 1 inch wide and a sixteenth of an inch thick.

## A Good Binder for \$1.50.

Subscribers for this journal can obtain our Patent Elastic Newspaper File Holder and Binder for \$1.50—containing gilt title of the paper on the cover. It preserves the papers completely and in such shape that they may be quickly fastened and retained in book form at the end of the volume, and the binder (which is very durable) used continuously for subsequent volumes. Sent postage free. It can be used for Harper's Weekly and other papers of similar size. If not entirely pleased, purchasers may return them within 30 days. Just the thing for libraries and reading rooms.

WOOLLAND, July 14, 1871.

DEWEY & Co.—Gents: I received the patent paper on my improved wagon all right, and I return thanks for the promptness with which you pushed it through.

Respectfully, C. ELLIOTT.

**Complete Volumes of the Scientific Press** from January, 1864, can be had at this office at \$3 per volume. Bound in cloth, \$5. A limited number only on hand.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations in the city, or in the country near San Francisco. To be seen at this office.

**EVERY MECHANIC** should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. 1c25-ly

**"A SLIGHT COLD," COUGHS.**—FEW ARE AWARE OF THE importance of checking a cough or "SLIGHT COLD" in its first stage; that which in the beginning would yield to a mild remedy, if neglected, often attacks the lungs. "Brown's Bronchial Troches" give sure and almost immediate relief. "The Troches" have proved their efficacy by a test of many years, and have received testimonials from eminent men who have used them.

**TO THE MINING INTEREST.**—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanic's Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled, with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL TO OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanic's Institute, care J. H. Gilmore, San Francisco.

"I CAN'T SEE IT!" say many. But if you really wish to see with a good strong sight you should go to the store of C. MULLER, No. 205 Montgomery street, and look through his glasses.

We have been pleased to meet Wm. H. Murray, Esq., traveling agent of that most valuable mining journal, the *SCIENTIFIC PRESS*, of San Francisco.

He was here some four or five days, visiting our mines and mills, gathering items regarding our resources, and soliciting for the journal which he represents. The *Press*, as a scientific and mining paper combined, is without an equal in America, and we are pleased to know that hereafter it will have a goodly number of readers in this mining camp.—*Colorado Miner, Georgetown.*

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## BOOKS

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MINING ENGINEER AND METALLURGIST.

Published and Sold by

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**Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick-silver.** 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit, by an author whose reputation is unsurpassed in his speciality.

Price \$2.50 coin, or \$3 currency, postage free.]

**Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams.** 1867.

This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

**Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores.** 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, \$5 in cloth; \$6 in leather—coin.

For single copies of the above works, or for the trade, address

DEWEY & CO.,

Publishers and Patent Agents, Scientific Press Office San Francisco.

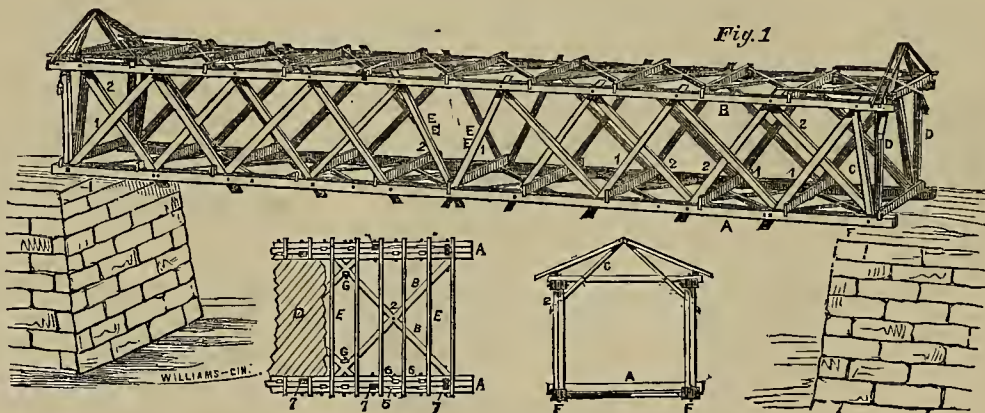
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NEW IMPROVED FAMILY

## KNITTING MACHINE.

**\$1,000 TO \$5,000 A YEAR, AGENTS** can make in almost any section of the country, selling Dana Bickford's new and improved FAMILY KNITTER. This Machine is guaranteed (in its present completeness) to meet every want of the household for either domestic or fancy work. Price \$25. Send stamped envelope with full directions for an illustrated book. Address DANA BICKFORD, Vice-President and General Agent, 689 Broadway, N. Y. 5v23-67bp

## PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature. The timber used is placed so directly in the line of strain, that less material is required to support the same load. It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN. Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.

F. MALOON, Secretary.

W. H. GORRILL, President.



## Mining and Other Companies.

On July 29, 1871, the following companies have been organized, and the names of the shareholders are given, which is the very latest hour we can receive advertisements.

## Eagle Quicksilver Mining Company—Lo-

cation of works, Santa Barbara County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of June, 1871, an assessment of twenty dollars per share was levied upon the shares of said Company, payable immediately in gold coin of the United States, to the Secretary, at his office, Room No. 5, No. 302 Montgomery street, San Francisco, California.

Any share upon which said assessment shall remain unpaid on Wednesday, the 9th day of August, 1871, shall be deemed delinquent, and will be duly advertised August 12th, 1871, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

W. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California.

## Highland Silver Mining Company—Lo-

cation of works, Railroad District, Elko County, State of Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 13th day of July, 1871, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at No. 24 Merchants' Exchange, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 21st day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 11th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.

Office, No. 24 Merchants' Exchange, California street, San Francisco, Cal.

July 29-td

## Marcelina Silver Mining Company—Lo-

cation of works, Eureka District, Lander County, Nevada. Notice—There are delinquent upon the following described stock, on account of assessment levied on the 2d day of June, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
P. P. Cunningham.....	21	200	\$ 40 00
P. P. Cunningham.....	22	200	40 00
P. P. Cunningham.....	23	100	20 00
Chas W Dungan.....	25	50	10 00
Chas Elliott.....	5	187	37 40
Chas F Eaton.....	36	500	100 00
Thos Kingle.....	24	130	26 00
Jas M McGuire.....	38	20	4 00
Daniel McLeod.....	27	50	10 00
J H Nelson.....	41	500	100 00
O C Palmer.....	29	300	60 00
C C Palmer.....	30	100	20 00
C C Palmer.....	31	100	20 00
C C Palmer.....	32	200	40 00
C O Palmer.....	34	25	5 00
C O Palmer.....	35	25	5 00
C C Palmer.....	42	100	20 00
C C Palmer.....	43	100	20 00
C C Palmer.....	44	100	20 00
C W Fox.....	unissued	200	40 00
C C Goodwin.....	unissued	6250	1250 00
Geo E Horrick.....	unissued	273	54 60
S L Hartmeyer.....	unissued	216	43 20
S L Hartmeyer, Trus, unissued	150	30	6 00
Wash Hayden.....	unissued	5	1 00
R O Ives.....	unissued	100	20 00
W H Lawrence.....	unissued	183	36 60
W H Lawrence, Trus, unissued	75	15	3 00
S W Lee.....	unissued	203	40 60
John McKewen.....	unissued	293	58 60
C C Palmer, Trus, unissued	6875	1375 00	
P B Quinlan.....	unissued	318	63 60
C J Riley.....	unissued	150	30 00
O R Worland.....	unissued	3000	600 00
Annie H Wilson.....	unissued	1125	225 00

An in accordance with law and an order of the Board of Trustees, made on the 24th day of June, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company room, No. 21 Haywards' Building, 419 California street, on Tuesday, the 1st day of August, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.

Office, Room 21, Haywards' Building 419 California Street, San Francisco, Cal.

July 15-2t

## Mountain City Mining Company—Loca-

tion of mine, Cope District, Elko county, State of Nevada. Notice—There are delinquent upon the following described stock, on account of assessment levied on the 8th day of June, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Best, John T.....	63	250	\$100 00
Enright, John T.....	63	250	62 50
Greek, H J.....	42	100	25 00
Hobron, W M O.....	23	50	12 50
Hobron, W M O.....	24	10	2 50
Hobron, W M O.....	25	10	2 50
Hobron, W M O.....	26	10	2 50
Head, Francis.....	62	400	100 00
Sharp, Wm H.....	70	900	225 00
Titus, H W.....	49	400	100 00
Titus, H W.....	50	200	50 00
Titus, H W.....	51	100	25 00
Titus, H W.....	52	100	25 00

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of June, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on the 8th day of August, 1871, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office, 206 Front street, San Francisco, Cal.

Advertising charges, \$2 each certificate. July 29-2w

## Nevada Land and Mining Company—Lo-

cation of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko County, State of Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of July, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 29th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 30th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

W. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California.

July 29-2w

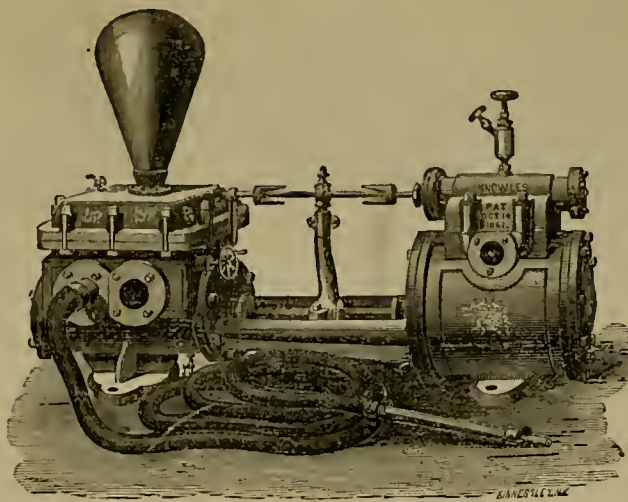
## Office Allegany Consolidated Gold Min-

ing Company, Sierra County, California. Notice—The annual meeting of stockholders of the above named company, for the purpose of electing Trustees and transacting any necessary business, will be held at the office of the company, No. 37 New Merchants' Exchange (third floor), California street, San Francisco, on Monday, the 31st day of July, 1871, at 3 o'clock P. M.

J. M. BUFFINGTON, Secretary.

July 29-2w

## KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

## CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,

SACRAMENTO, CAL., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly,

A. J. STEVENS, General Master Mechanic.

## OFFICE OF PEOPLE'S TRANSPORTATION CO.,

PORTLAND, OREGON, April 22, 1871.

Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.

Yours respectfully,

G. MARSHALL, Chief Engineer.

## OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.

MESSEURS. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly,

C. P. HARM.

## OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.

MESSEURS. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly

GEORGE M. REYNOLDS, Supt. Engineer.

## U. S. NAVY YARD, NEW YORK, June 3, 1871.

MESSEURS. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully,

WM. W. WOOD.

## OFFICE OF THOMAS IRON WORKS, HOKENDAGUA, Pa., June 1, 1871.

MESSEURS. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc.,

EDWIN MICKLEY, Supt. of Mines.

## OFFICE OF THE SAUCON IRON CO.,

HELLFROSTOWN, Northampton County, Pa., May 26, 1871.

MESSEURS. KNOWLES & SIBLEY, New York—Gents: We saw most cheerfully respond to your inquiry as to the quality of the Knowles Patent Steam Pumps we have in use. We have bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.

Yours very respectfully,

G. W. WHITAKER, President and Superintendent.

## OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.

MESSEURS. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly,

P. SAULT, Superintendent.

## CENTRAL AND WESTERN PACIFIC AND CAL. AND OREGON RAILROADS,

OFFICE Supt. W. M. P. &amp; M., SACRAMENTO, CAL., July 8, 1870.

A. L. FISH, Esq., San Francisco—Dear Sir: Your favor of the 2d inst. is received, asking my opinion in regard to the Knowles Steam Pump, and would say I have used the Knowles Steam Pump for several years, and consider them for all purposes the best steam pump in use. Yours truly, E. F. PERKINS, Supt. M. P. & M.

Yours truly,

JOHN CLEMENTS, Engineer.

## OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working very four months, and has given entire satisfaction; and I take great pleasure in recommending them to all you have claimed for them, and I will add that I think they have no equal. Yours, etc.,

Yours truly,

JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machiues on hand.

24v22-cow

## Pinto Mining Company, Location of Works,

Silverado, Pinto Mining District, White Pine County, Nevada.

Notice—There are delinquent upon the following described stock, on account of assessment levied May 24th, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Leopold Jacobl.....	1	60	\$ 7 50
Leopold Jacobl.....	from 2 to 32	50	193 75
A H Ward, Jr.....	111	805	104 62
Henry G Langley.....	171	1 610	201 25
Robert E Johnson.....	213	321 1/2	40 21
Erasmus Olson.....	212	10,000	1,250 00
D B Arrowsmith.....	not issued	1,610	201 25

And in accordance with law, and an order of the Board of Trustees, made on the 24th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the 17th day of July, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco. 26v22-3t

## PINTO MINING COMPANY.—The above sale is

postponed until Wednesday, the 16th day of August, 1871, at the same time and place. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

## Taylor Mill and Mining Company—Lo-

cation of works, Georgetown District, El Dorado County, State of California. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of July, 1871, an assessment of ten (10) cents per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 529 Montgomery street, San Francisco, Cal. Any stock upon which any assessment shall remain unpaid on the 8th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

SAML S. MURPHY, Secretary.

Office, 529 Montgomery street, over Sather &amp; Co's Bank, San Francisco, Cal.

July 13-td

## GEORGE T. PRACY,

MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY,

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23H

REMOVAL

—OF—

CENTRAL PACIFIC RAILROAD

Ticket and Freight Offices

—FROM—

422 CALIFORNIA STREET, TO SOUTH-

WEST CORNER OF

Market and New Montgomery Streets,

AUGUST 5TH, 1871.

July 29-4w

ARTIFICIAL LIMBS.

A. A. MARKS, No. 575 Broadway, N. Y. City,

the inventor and author

ized United States Govern-

ment manufacturer of the

celebrated first premium

Artificial Limbs with Rub-

ber Hands and Feet, has

published a new and enlarged edition of his illustrated

Pamphlet, of importance to all who have suffered am-

putations, especially to officers and soldiers who lost

their limbs in service. Copies sent free to applicants

21v1-13c-12tr

B. F. UNDERWOOD, OF BOSTON,

The Popular Liberal Lecturer,

Will speak at Mechanics' Institute Hall, Saturday Even-

ing, at 8 o'clock; Dashiway Hall, Sunday Morning, at

10 o'clock; and at Mechanics' Institute Hall, Sunday

Evening, at 8 o'clock.

SUBJECT OF FIRST LECTURE:

"Christianity and Free Thought—the two

Systems Contrasted."

The two first lectures FREE.

July 29-1t

\$25. STEAM JET PUMP. \$25.

The simplest and cheapest device ever known for

raising water, oils, syrups, acids, etc. Capacity 40

gallons per minute. Used in hotels, factories, mines,

quarries, etc. Operated by steam direct from boiler.

Has no valve on wearing parts of any kind. Is UN-

APPROVED BY HAND OR CRT. Certain to work at all

times. Sent to any address on receipt of \$25.

July 29-4w SINKER, DAVIS &amp; CO., Indianapolis, Ind.



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN. A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

## Steam Engines and Boilers,

MARINE AND STATIONARY,

## IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.

## FULTON

## Foundry and Iron Works.

HINKLEY &amp; CO.,

MANUFACTURERS OF

## STEAM ENGINES,

Quartz, Flour and Saw Mills,  
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

## MACHINERY

— AT —

## GREATLY REDUCED RATES.

## Miners' Foundry &amp; Machine Works,

235 TO 245 FIRST STREET,  
SAN FRANCISCO.

This Establishment is now working upon the CO-OPERATIVE PLAN, And are thereby enabled to manufacture MACHINERY, CASTINGS &amp; BOILERS AT EASTERN PRICES, And better adapted to the wants of the Pacific States Ascertaining our prices before purchasing. 8v20g

## PACIFIC

## Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of RAILROAD AND OTHER IRON — AND — Every Variety of Shafting.

Embracing ALL SIZES of Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

## HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY, Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron. 9v143m

## THE RISDON

## Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1865.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: S. F. Butterworth, Lloyd Tevis, Wm. Alford, Wm. Norris, Joseph Moore, Chas. E. McLane, John N. Risdon.

WM. H. TAYLOR.....President.  
JOSEPH MOORE.....Vice President and Superintendent.  
LEWIS R. MEAD.....Secretary.  
24v17-qy

J. O. CALDWELL, President. REESE LLEWELLYN, Superintendent.

## COLUMBIA

## Co-operative Foundry Company,

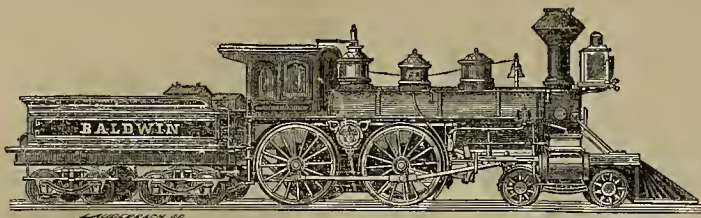
(INCORPORATED MARCH 16, 1871).

133 and 135 Beal Street, between Mission and Howard, SAN FRANCISCO.

Manufacturers of MACHINERY AND CASTINGS of every description.

Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

## BALDWIN LOCOMOTIVE WORKS.



M. BAIRD &amp; CO., Philadelphia,

## MANUFACTURERS OF LOCOMOTIVE ENGINES.

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed  
M. BAIRD, CHAS. T. PARRY, WM. P. HENSZEY,  
GEO. BURNHAM, EDWARD H. WILLIAMS, EDWARD LONGSTRETH.  
WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal. apl-eow26t

## VULCAN IRON WORKS,

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

## ATKINS &amp; BURGESS,

MANUFACTURERS OF

## STEAM SHOVEL OR LAND EXCAVATOR,

STEAM DREDGES, STEAM PILE DRIVERS, MILL

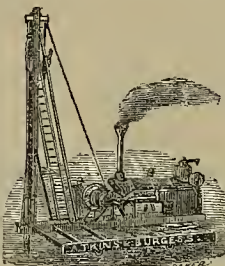
GEARING AND

## GENERAL MACHINERY

## CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to. 24v22-3m



## UNION IRON WORKS,

Sacramento.

## WILLIAMS, ROOT &amp; NEILSON,

MANUFACTURERS OF

## STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders

And all kinds of Mining Machinery.

Front Street, between N and O streets.

SACRAMENTO CITY 1 v1

## SEVERANCE HOLT &amp; CO.,

MANUFACTURERS OF

## Diamond-Pointed Drills

## AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 15, No. 315 CALIFORNIA STREET, San Francisco. 25v20-3m

## THOMPSON BROTHERS,

## EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

## LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

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## BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &amp;c. Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

## Machinery.

## POWER, TAITER &amp; CO.,

MANUFACTURERS OF



## WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge), PHILADELPHIA.

Woodworth Planers a Specialty. 2v23-1y

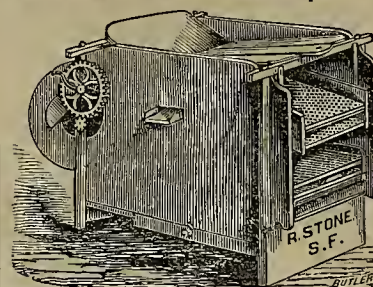
## CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. PRICES MODERATE. J. H. WEED V. KINGWELL.

## THE PATENT Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

For further information apply to R. STONE, 422 Battery street, San Francisco. 25v22-3m

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

## THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

## IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

## RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

## DO NOT BE DECEIVED

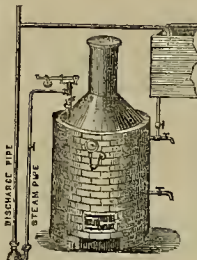
by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation. For further particulars address

FURMAN R. WILSON,  
San Francisco.

## STEAM JET PUMP.

Blaislee &amp; Williams' Patent.—For Water, Oils, Acids, Etc.



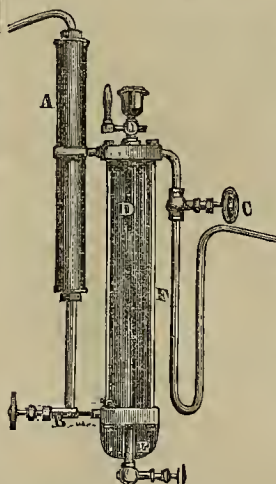
The best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

## Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER &amp; HUNT, Southeast cor. Tenth &amp; K Streets, Sacramento City Cal. AGENTS—CHAS. F. BUCK, 117 California st., San Francisco; KEEF &amp; BARGION, Stockton. Can be seen at McAFFEE, SPIERS &amp; Co's. Boiler Works, S. F. 21v21-tf

## GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

## TRAVIS &amp; WAGNER!

AGENTS FOR

Dufour &amp; Co's.,

Celebrated Dutch Anchor brand Bolt-

ing Cloths; Snout

Machines; Bran

Dusters; Mill Picks;

Mill Stones repaired

rebuilt and bal-

anced.

MANUFACTURERS OF

French Burr Mill

Stones, Portable

Mills of all sizes,

Salting Quartz.

41 First st., San Francisco.

from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &amp;c. Mills specially adapted for

Salting Quartz. 41v22-lyns

## McAFFEE, SPIERS &amp; CO.,

## BOILER MAKERS

AND GENERAL MACHINISTS,

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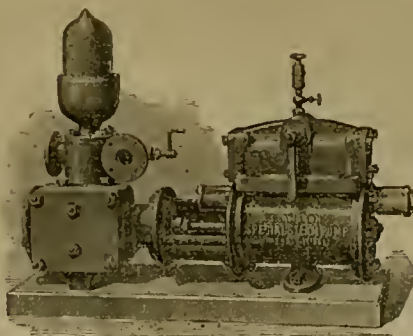
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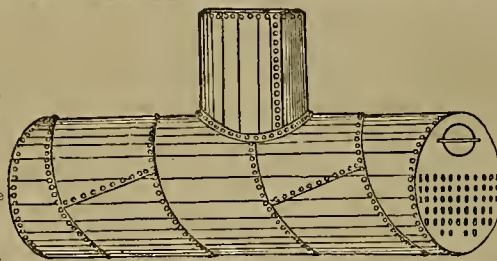
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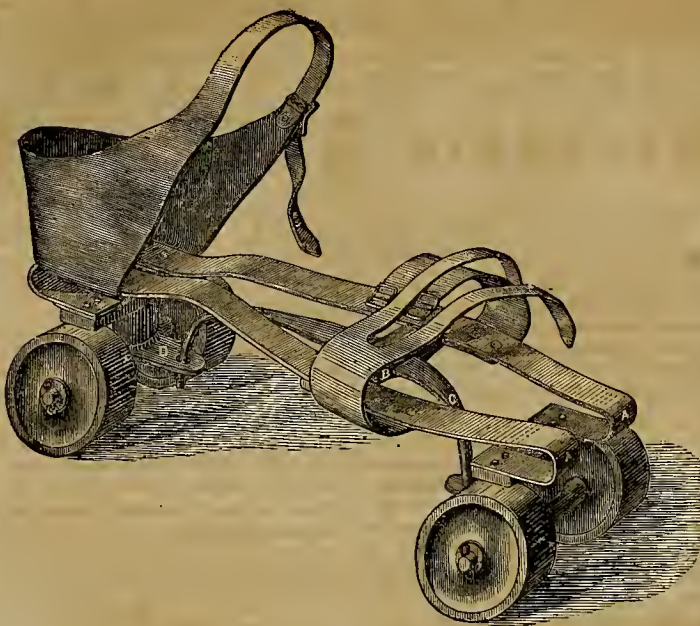
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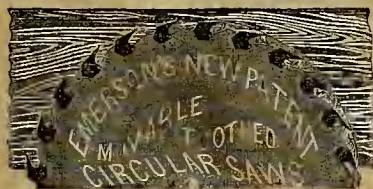
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SAN FRANCISCO, SATURDAY, AUGUST 5, 1871.

VOLUME XXIII.  
Number 5.

## Ericsson's Solar Calorimeter.

We have spoken at different times of the experiments of Ericsson in measuring the heat of the sun with reference to the practicability of employing solar heat as a motive power. The editor of the *American Artisan* having kindly sent us an engraving of the instrument used by Ericsson in his experiments, we give the illustration with Ericsson's description condensed from *Engineering*, where it originally appeared, as follows:

It will be well to state at the outset that the solar calorimeter, and all my instruments constructed for investigating the mechanical properties of solar heat, are attached to a table which swings upon a horizontal axle, and which rotates round a vertical pivot, appropriate mechanism being applied for regulating the combined vertical and lateral movement in such a manner that the top of the table, composed of a heavy brass plate accurately faced, is at all times during observations kept perpendicular to the central ray of the sun. Hence, instruments whose base is at right angles to their vertical axle may be secured at any point of the face of the rotating table, without further adjustment. A graduated arc is attached to one end of this table, provided with an immovable index; consequently, the sun's zenith distance may at all times be ascertained by

error resulting from this assumption is, however, so trifling that the described graphic method of ascertaining the depth of the atmosphere may, without appreciable discrepancy, be employed in all latitudes.

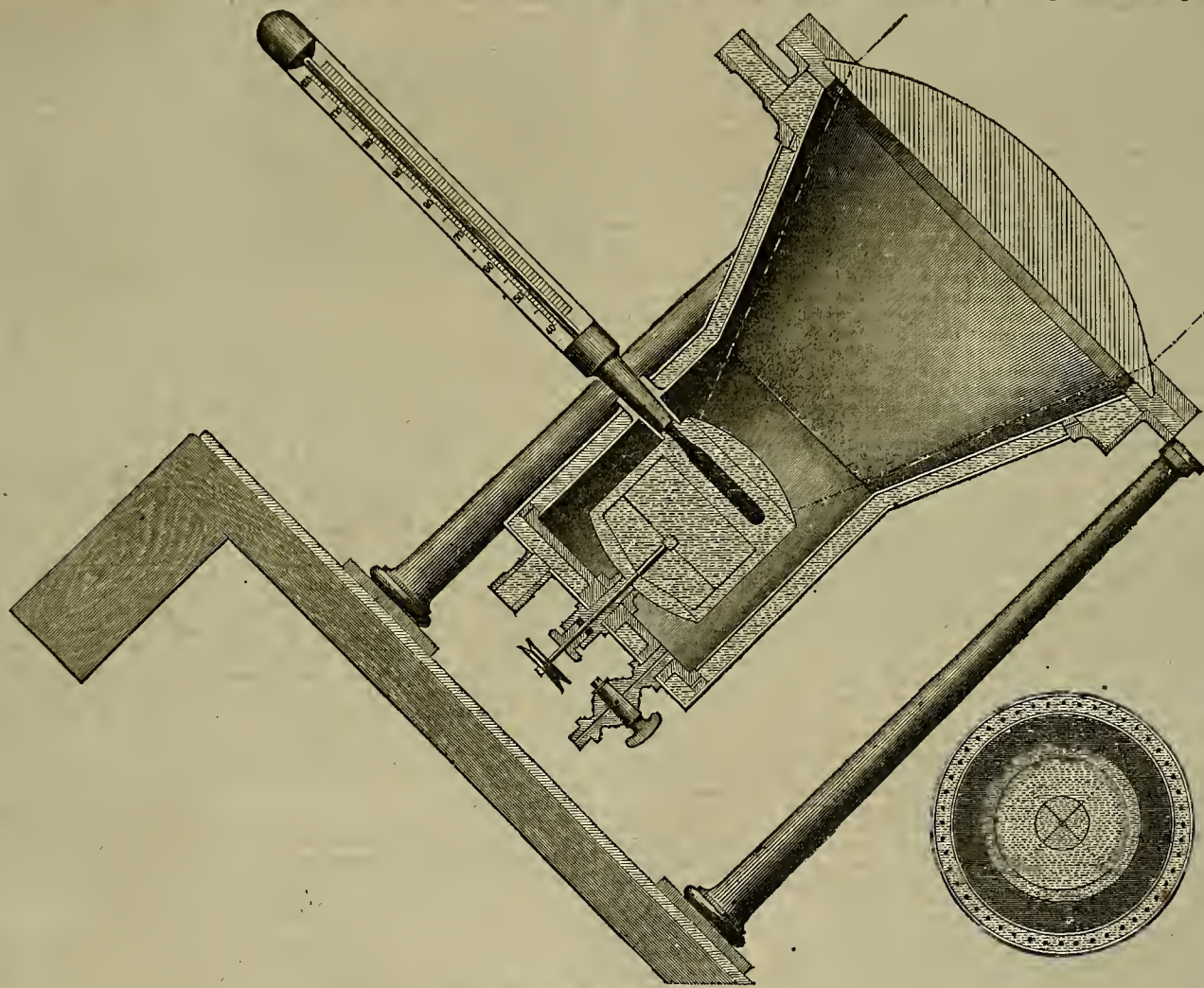
The solar calorimeter consists of a double vessel, cylindrical at the bottom and conical at the top, an eight-inch lens being inserted at the wide end in the manner shown by the illustration. The interior is lined with burnished silver, and the space between the two vessels is closed at the top and bottom by means of perforated rings, as shown in the transverse section, the object being to distribute equally a

lower compartment containing four radial wings or paddles, the diaphragm being perforated in the center. The centrifugal paddle-wheel revolves on an axle which passes through a stuffing-box applied at the bottom of the double vessel, the rotary motion being imparted by means of a pulley secured to the lower end of the axle. The operation of this wheel, intended to promote perfect circulation of the fluid within the heater, is quite peculiar. It will be readily understood that by turning the wheel the centrifugal action of the fluid produced by the rotation of the paddles will draw in water downwards through the central perforation of

of fifty-two square inches of section, is placed at such a distance from the heater, that when the concentrated rays reach the upper end (painted with lamp-black) they are confined to an area of 3.25 square inches, precisely one-sixteenth of the sectional area of the sunbeam which enters the lens.

The loss of heat by convection and currents of air has been wholly obviated in the solar calorimeter, while the loss caused by radiation from the blackened surface of the heater has been reduced to a mere fraction. It may be contended, however, that the loss by radiation of the polished heater against the interior polished

surface of the calorimeter, although minute, is yet appreciable; and that some heat will be lost by conduction at the points where the heater joins the external vessel. Even these trifling sources of error, it will be seen presently, have been removed by the new method. A force pump and capacious cistern containing water are arranged near the calorimeter, a uniform temperature of 60 degrees being kept in this cistern by the usual means of a warm and cold water supply. By appropriate hose and the force pump mentioned, a constant current is kept up through the space between the internal and external casings of the instrument; hence, every part of the latter may be brought to a uniform temperature of 60 degrees in a few



ERICSSON'S "SOLAR CALORIMETER."

micro inspection, a very great convenience in an investigation which at every instant is dependent on the changing depth of the atmosphere through which the sun's rays pass. As this depth bears a fixed relation to the sun's zenith distance, it may of course be accurately determined by noting the position of the fixed index on the graduated arc, but as there is no time during investigations of this kind for computations, as already pointed out, I have constructed a graduated scale provided with a movable radial index, which, by being brought to the division corresponding with the observed zenith distance, shows the depth of atmosphere. It is proper to observe that in constructing this scale I have assumed the earth to be a perfect sphere of 3,956 miles radius. The

current of water to be passed through the space between the vessels. Nozzles are applied at the top and bottom of the external vessel, of suitable form to admit of small hoses being attached. A stop-cock with coupling joint is applied at the bottom, communicating with the interior of the calorimeter, and connected with an air-pump for exhausting the same. A cylindrical vessel, termed heater, with curved top and bottom, composed of polished silver, is secured in the lower part of the instrument, and provided with a conical nozzle at the top, through which a thermometer is inserted from without. Within the lower part of the heater is introduced a centrifugal paddle-wheel, surrounded by a cylindrical casing divided in two compartments by a circular diaphragm, the

the diaphragm, and force the same into the annular space round the casing of the wheel, thus an upward current will be kept up through this annular space uniform on all sides. This current, after reaching the top of the heater, will then return, first entering the open end of the casing of the wheel, and ultimately the central perforation of the diaphragm. I have been thus particular in describing this system of promoting uniform circulation within the heater because a proper indication of the actual mean temperature of the water contained in the same is the all-important condition on which depends the accuracy of the determination of the number of units of heat developed. It only remains to be pointed out that the lens, which is so proportioned as to admit a sunbeam

minutes. The process of measuring the solar energy is conducted in the following manner: The thermometer being withdrawn, the heater is charged with distilled water of a temperature of about 45 degrees, after which the thermometer is again inserted. The table supporting the instrument should now be turned towards the sun and the paddle-wheel put in motion. The indication of the thermometer must then be watched and the time accurately noted when the mercurial column marks 50 degrees on the scale, the observation continuing until the thermometer marks 70 degrees, at which point the time is again accurately noted. The experiment being then concluded, the table should be turned away from the sun. It scarcely needs

(Concluded on page 67.)



## MECHANICAL PROGRESS.

**SIEMEN'S RESISTANCE PYROMETER.**—The principle of this rests on the following facts: The electrical resistance of a conducting wire of given metal, at a fixed temperature, to a current of constant intensity, depends upon its diameter and its length; but when the temperature of the wire increases, the resistance increases. So that if we have a platinum wire of considerable length, whose electrical resistance at some known temperature is ascertained, we can determine some unknown higher temperature by determining the resistance at that temperature. The pyrometer consists of a tube of thin iron (to be inserted part way into the furnace) containing a porcelain spiral grooved cylinder, on which is wound a platinum wire. The ends of this wire pass through clay tubes inside of the iron pipe to a sufficient distance, and finally are covered with insulating material outside of the pipe. With the current constantly passing through the coil, the resistance to it may be measured either by the deflections of a magnetogalvanometer, or, preferably, by a suitably constructed differential voltmeter. The voltmeter used by Mr. Siemens consists of two voltmeter tubes, fixed upon graduated scales; which are so connected that the current of a battery is divided between them, with one branch including a known and permanent resistance, and the other the resistance to be measured. Changes of atmospheric pressure affect both sides equally, and therefore do not influence the results; but a reading at the atmospheric pressure is obtained by lowering the little supply reservoir with dilute acid to the level indicated in the corresponding tube. The upper ends of the voltmeter tubes are closed by small weighted levers with india-rubber cushions; after each observation these are raised, and the supply reservoirs moved so as to cause the escape of the gases until the liquid in the tubes comes again to the zero line of the scale, when the instrument is ready for another observation. The leading wires between the thermometric coil and the measuring instrument, would exercise a considerable disturbing influence, but this is eliminated by means of a third leading wire common to both branches of the measuring instrument. This can be used easily to determine at any time temperature even at points miles away.—*Engineer.*

**"PIANO-MECANIQUE."**—At the International Exhibition, Mr. Dehrain has exhibited a "piano-mécanique" or mechanical substitute for a pianist,—an addition to an ordinary piano, so that the instrument can be played on by machinery or in the usual way. On opening the lid of the piano, we see, according to the *Mechanics Mag.*, a row (about 5 in. long) of steel points, running transversely to the length of the piano. These points connect, by levers, with hammers placed above, and independent of, those used with the ordinary key board. In line with the points is a steel bridge, about 1 in. high, with a flat spring on its underside. A series of small boards—planchettes—are placed, face down, on the top of the piano, the end being brought under the bridge at starting. Each planchette has a rack which gears into a pinion just inside the bridge, which is actuated by a handle in front of the piano. The planchettes are provided with steel studs which represent the notes to be struck and are spaced according to the tunes, like the barrel of a hand organ. The handle being turned, the planchettes are moved, and the studs on them, by impinging on the steel points, cause the hammers to strike the strings. Each planchette represents a portion only of the composition, so that as the rear end of each approaches the bridge, the operator follows it up with another planchette. The forte and piano pedals are actuated by separate studs on the planchettes, elongated according to the duration of their action.

**A SIMPLE LOCK-NUT.**—The Oakley bolt is a most simple nut locking arrangement. On one side of the bolt the screw-thread is partially cut away, producing a flat surface. A triangular washer is stamped with a hole which corresponds with this form of the flattened bolt, and consequently cannot turn. An ordinary nut is screwed down on it and held by turning down an angle of the washer so as to clip the nut. A complete lock is thus obtained.—*Mech. Mag.*

**INCREASE OF NARROW GAUGE RAILROADS.** The first great revolution in railway practice is taking its successful course, not without strenuous opposition from prejudice, conservatism, and indifference; but all these obstacles and the difficulties they create directly and indirectly, are being swept away, as the conviction gathers strength that countries now unprovided or ill supplied with railways must soon have them, and that they must be productive, and not sources of loss. There is only one means by which this result can be achieved,—a reduction of gauge, an increase of gradients and curves—cheap railways in short—proper mechanical appliances for economically working traffic, and a rigid observance of economy in construction and in management. There are very few, even of those who have carefully followed the discussions upon narrow-gauge railways in these columns and elsewhere, who have any idea of the extent to which such constructive reform has now spread. The situation may be summed up thus: In India a gauge of 3 ft. 3 in. has been established, upon a scale that will bring into existence a system probably of thousands of miles. The reduced width will, in fact, become the gauge of the country. Australia, Tasmania and New Zealand are following the same course. Australia especially is determined upon receiving the reform and carrying it out fully. In Russia the 3 ft. 6 in. gauge is definitely accepted, and the results of its working will shortly result in construction of an enormous *reseau* of lines from north to south, from the Baltic, penetrating into Siberia. In Egypt the same width is to be adopted. In the United States more than 2,000 miles of narrow gauge are in actual progress, or about to be commenced. California is organizing railways on the reduced gauge in all directions; lines are being started in the unsettled territories of the west and north-west, where communications alone are required to convert uninhabited regions to wealthy agricultural or rich mining districts; in the Eastern and Central States, where energy and capital are most alive and plentiful, narrow gauge companies and organizations—not vague schemes, but promoted by engineers and capitalists, are urging the construction of independent railways, or of feeders to the existing lines. In Canada, where progress drags along most wearily, narrow gauge railways are being built; even for Prince Edward's Island contractors are at the present moment solicited to tender for the construction of a 3 ft. 6 in. line from Casumpec to Georgetown, a distance of 120 miles.—*Engineering*, June 30.

**WHITE'S ROLLING MILL.**—A model of this was exhibited at the London International Exhibition. It is intended to avoid the loss of time and other disadvantages attending the operation of rolling as ordinarily practiced by the shifting of the bar from one groove to the other, the turning it sideways for edging, etc. The system consists in the use of several pairs of rolls combined in one mill, some of the rolls being vertical and others horizontal, and they are so arranged that the bloom is compressed flatways and edgewise alternately through as many pairs of rolls as may be required for reducing the iron to its proper size. The machine is so constructed that the bloom enters the second pair of rolls before leaving the first, and so on through the entire series of rolls without stoppage, thus superseding all manual labor, with the exception of a man to throw the pile into the first pair of rolls, and another to take the bloom or bar away; and what is more important still, allowing the iron the smallest possible space of time to cool in the process. The system is more particularly applicable to blooming, roughing, or slabbing rolls, but, in many instances, it can also be applied to finishing rolls. The mill is capable of turning out a large quantity of work, the Aberdare Iron Company having made from 90 to 100 tons of iron in twelve hours by one machine.—*Eng. and Min. Jour.*

**THE RHIGI RAILWAY** has lately been opened. It runs to a height of 5,000 feet, and is constructed with three rails, the middle one of which is a rack intended to work with a pawl attached to the locomotive. Each train is composed of an engine and two carriages holding about 60 persons. The engine is always below the carriages.

To OLEAN and polish ivory carvings—first bath brick in powder, well sifted, applied with felt and spirits of wine, or with a circular brush, afterwards finely washed with oil and spirits. Nothing is better to finish with than ivory dust.—*Technologist.*

## SCIENTIFIC PROGRESS.

**GEOLOGY OF THE GREAT BASIN.**—From King's Report on the mining regions along the 40th parallel, we condense a few facts on the geological history of the region. The greater part of the rock of the interior mountain area (from the Sierra to the Wahsatch mountains) is a series of conformably stratified beds reaching from the early Azoi to the late Jurassic. In the late Jurassic these beds were raised, and the Sierra Nevada, the Wahsatch mountains and the parallel ranges of the Great Basin, were upheaved. Accompanying this upheaval, important masses of granite broke through, accompanied with quartz-porphyrries, felsite rocks, and, notably, syenitic granite, with occasional occurrences of granulite and greisen. Then, on the west side the Pacific Ocean, and on the east side the ocean which covered the Mississippi Basin, laid down a system of cretaceous and tertiary strata. These outlying shore beds, subsequently to the Miocene, were themselves raised and folded, forming the Pacific Coast Range and the chains east of the Wahsatch; volcanic rocks accompanying this upheaval as granites did the former one. Still later a final series of disturbances occurred, but these last had but small connection with the region of which this volume treats.

There is a general parallelism of the mountain chains and all the structural features of local geology, the ranges, strike of great areas of upturned strata, larger outbursts of granitic rocks, etc., are nearly parallel with the meridian. So the precious metals arrange themselves in parallel, longitudinal zones. There is a zone of quicksilver, tin and chromic iron on the coast ranges; one of copper along the foothills of the Sierra; one of gold further up the Sierra, the gold veins and resultant placers extending far into Alaska; one of silver, with comparatively little base metal, along the east base of the Sierra, stretching into Mexico; silver mines with complicated association of base metals through Middle Mexico, Arizona, Middle Nevada and Central Idaho; argentiferous galena through New Mexico, Utah and Western Montana; and, still further east, a continuous chain of gold deposits in New Mexico, Colorado, Wyoming and Montana. The Jurassic disturbance in all probability is the dating point of a large class of lodes: *a*, those wholly inclosed in the granites, and *b*, those in the metamorphic beds of the series extending from the Azoi to the Jurassic. To this period may be referred the gold veins of California, those of the Humboldt mines, and those of White Pine, all of class *b*; and the Reese River veins, partly *a*, and partly *b*. The Colorado lodes are somewhat unique, and in general belong to the ancient type. To the Tertiary period may be definitely assigned the mineral veins traversing the early volcanic rock; as the Comstock lode and veins of the Owyhee District, Idaho. By far the greater number of metalliferous lodes occur in the stratified metamorphic rocks or the ancient eruptive rocks of the Jurassic upheaval; yet very important, and, perhaps, more wonderfully productive, have been those silver lodes which lie wholly in the recent volcanic formations.

So far as we now know, no metallic veins occur in the Tertiary formations east of the Wahsatch mountains; whereas the remarkable metamorphism in the Tertiary coast ranges near San Francisco Bay, has developed extraordinary deposits of quicksilver and chromic iron.

Of the series of conformable strata forming the main central mountain masses, from 6,000 to 10,000 feet are true coal measures of the Carboniferous, but without a trace of coal, having been laid with rare regularity in the quiet depths of an ocean. The two bordering systems contain, however, near the upper limits of the Cretaceous, and upward into the Tertiary, important beds of coal. The California beds and those in the sandstones along the east base of the Wahsatch mountains, are Cretaceous; but the strata, as one goes east, change in character, and we finally get Tertiary coal.

**WATERPROOF FABRICS.**—There are five principal methods which have been proposed for rendering goods waterproof.—1. Waterproofing by means of a coating of gum or caoutchouc. By this method the pores of the fabric are closed and the access of air prevented. It is, therefore, unsuitable for clothing, and also too expensive; it does very well, however, for belting, tuhing, etc. 2. Covering the tissue with varnish or lac. It makes the goods

hard and liable to break. It is entirely unsuited for dress goods, for these reasons and also because it renders the cloth inflammable. 3. Impregnation with tar and paraffine. This coating does not last long, as it is destroyed and rendered inactive by the action of the air. 4. Impregnation with solutions of metallic salts, such as iron, copper, and zinc. By this method it is impossible to obtain true waterproofs. 5. Precipitation of alumina upon the fibre. By this method the tissue retains its suppleness; its weight is but little increased, and a perfect waterproof coating assured. The following are some of the receipts communicated: Beard & Downing use a mixture of linseed oil, rosin, Burgundy pitch, and caoutchouc, with a little petroleum added, and white lead. De Brun: 100 parts linseed oil, 15 parts litharge, 15 parts amber, 2 parts hydrated protoxide of manganese. Spill & Company: naphtha and caoutchouc. Bronman: 100 parts slacked lime, and 100 parts of soda, dissolved in water; add 270 parts of rosin, and 0.003 gum gut; the solution dissolved in boiling water, and 10 parts of alum added. Hirsch: 100 pounds linseed oil, 5 pounds copperas, 4 pounds zinc vitriol, 6 pounds caoutchouc. Stenhouse stretches the cloth over a hot iron plate, and rubs the paraffine into it; or the paraffine is melted in a tank and the goods passed through; or the paraffine, pure or mixed with steaming wax, etc., is applied in solution.—*Manufacture's Review.*

**COLORING METALS.**—C. Puscher, of Nuremberg, proposes a quick and cheap method of coloring the surface of metals by adding a coating of metallic sulphides. He dissolves 1½ oz. hyposulphite of soda in 1 lb. of water and adds thereto 1½ oz. acetate of lead dissolved in ½ lb. water. This clear solution heated to 190° to 210° F., decomposes slowly and precipitates sulphide of lead in brown flocks. If a metal is present, a part of this sulphide is deposited on it. Thus, there may be imparted to brass articles a color varying from gold to copper red, then carmine red, dark and then light aniline blue, blue white and finally reddish white, according to the length of time they remain in the solution. Iron takes a steel-blue, and zinc a brown color. Lead and zinc are entirely indifferent. If sulphuric acid is substituted in the solution for acetate of lead, brass is covered with a beautiful red, then green, then fine brown with green and red iris-glitter; this last is a very durable coating.—*Technologist.*

**HEATING BY WATER.**—"It occurred to me that the flow and return might be managed by the use of a single pipe, instead of two, as now universally adopted. I directed the experiment to be tried by affixing, to the socket-end of a four-inch pipe, an inch supply-pipe from an ordinary boiler, and a second pipe communicating with the bottom of the four-inch pipe and the bottom of the boiler. As I expected, the circulation was most perfect and rapid, the hot water flowing along the upper surface of the pipe, and the cold water returning along the lower surface. Two currents in opposite directions were created in the pipe, and the action was so perfect that I ordered, to be fitted up forthwith, a frame, which has been in operation ever since. This mode of heating by a single pipe may be, no doubt, of frequent use; and manifestly, from the simple and portable nature of the apparatus, the arrangement will commend itself to the attention of horticulturists."—*Alfred Smea.*

**THE SPECTRUM OF THE CORONA,** writes Prof. C. A. Young, is, in all probability, composed of at least four superposed elements: 1st. A continuous spectrum, without either bright or dark lines, due to indescendent dust. 2d. A true gaseous spectrum of the second order, consisting of a more or less bright continuous background with well marked bright lines. 3d. A true sunlight-spectrum (with its dark lines) formed by photospheric dust reflected from the solar atmosphere and meteoric dust. 4th. A mixture of the three named with the addition of the chromosphere spectrum. This light from the terrestrial atmosphere, like that reflected from particles near the sun, is evidently partially polarized in radial planes.—*Amer. Journal of Science.*

**ATOMIC WEIGHTS OF COBALT AND NICKEL.** At the suggestion of Prof. Gibbs, Mr. R. H. Lee, of the Lawrence Scientific School, Cambridge, Mass., has determined the atomic weights of cobalt and nickel. He finds these to be, for cobalt, 59.10; for nickel, 58.01.



[Continued from page 65.]

explanation, that during the elevation of the temperature of the water from 50° to 60° the instrument radiates toward the heater, and that while the temperature rises from 60° to 70° the heater radiates toward the instrument. In each case the amount of heat radiated, that is, the gain and the loss, is almost inappreciable, since both the heater and the surrounding internal vessel are composed of polished silver. The amount of gain and loss of heat by conduction at the points where the heater joins the surrounding vessel, if appreciable, evidently balance each other in the same manner as the gain and loss by radiation.

The weight of distilled water at 60° contained in the heater, and the weight and specific heat of the materials which compose its parts, being ascertained, the number of units of heat necessary to elevate the whole 20° may be readily calculated. To this must be added the percentage of calorific energy lost during the passage of the sun's rays through the lens. The sum will represent a permanent coefficient for each particular instrument, which may ever afterwards be employed to determine the dynamic energy of the sun's radiant heat. Obviously the indication will be equally correct during the winter solstice in a northern latitude with the mercurial column at zero, as during the summer solstice within the tropics, when the thermometer marks 100° in the shade.

## CORRESPONDENCE.

### A Trip to Colorado.—No. 4.

By OUR OWN TRAVELER.

From Golden I went to Central City, to visit this famous mining center. And here it occurs to me that, before writing further, it would be perhaps well to map out the routes. For I fear that many in California have but an indefinite idea of this great territory of Colorado. So I send you a drawing which, although very small, is large enough to denote the relative positions of the several places. In the drawing, D stands for Denver, G. C. for Golden City, C. C. for Central City, I. C. for Idaho City, G. for Georgetown, C. C. R. R. is the Colorado Central Railroad, D. & R. G. the Denver and Rio Grande, K. P. the Kansas Pacific, and B. V. the Boulder Valley.

#### Central City.

One's first impressions on getting into Central are not very favorable. You come over the mountains into the North Clear Creek Gulch, and ride up a steep and dusty road past Black Hawk to Central City, the two last places adjoining. You find the city built on the steep hillside, the streets narrow and not particularly level. There is no timber to lend beauty to the scene; the work of the miners has scarred the hills, and, besides the active mills and mines, you see works which are falling into decay.

Luckily one's first impressions are not lasting. An acquaintance with the people gives one different ideas. Greater kindness and hospitality I have never met with. The people here have had hard times, and the evidences of these are what strike one unfavorably at first. But no one ever stays any length of time in the place without getting the strongest belief in the growing betterment of affairs and in the future prosperity of the Territory.

At Central there are two hotels,—the National, R. B. Smock, proprietor, and the Conner House. Considerable fault has been found hitherto with the accommodations for travelers. Now the Central City folks have determined to direct their enterprise in this direction, and to remove all cause for fault finding. They have raised \$10,000 in cash, given "out and out," and a stock company is being formed with \$20,000 or \$30,000 more, for the purpose of building a first-class hotel. This is to be ready by next Spring; and I doubt not but that Central will then have a place second to none west of the Rocky mountains. This action shows the enterprise of the people of this section. Possibly, they have been too hospitable previously for the good of the hotels.

Central has two of the best papers printed. The Register (Collier & Hall, proprietors) is excellently edited, is full of enterprise, and is deservedly a most popular because a decidedly first-class sheet. The firm has a fine book and job office, and does most superior work. The Herald is filled with interesting news, is most ably managed, and is making its influence felt in the community. These two papers look well after the interests of the place, and by their live character are conducting ma-

terially to the prosperity of this section.

There are three banking houses here which do quite a large amount of business. I found the gentlemen of the Rocky Mt. National Bank very attentive to business and to the desires of those with whom they have to deal.

#### Visitors—Foundry, Etc.

I had the pleasure, while at Central, of meeting the members of the mining department of the Mass. Institute of Technology, who are on their summer excursion to the mines and smelting works of the country. The party is composed of Messrs. J. D. Ruukle (President of the Institute), J. M. Ordway (Prof. of Metallurgy), A. P. Rockwell (Prof. of Mining Eng.), Dr. S. Kneeland (Prof. of Zoology), R. H. Richards (Prof. of Mineralogy and Assaying) and J. B. Henck (Prof. of Civil Eng.); and five graduates and ten undergraduates. Besides studying mining and metallurgy on the ground, the party make collections of minerals, ores, products of the various processes, etc. This plan of summer expeditions is a leading and important feature of this institution.

The Central City machine shop is owned by the enterprising firm of Hendrie Bros., who also have works at Helena, Montana. This company has 15 men employed and turns out good work. An important feature is their manufacture of Bolthoff's patent pressed shoes and dies, of which I have given you a description in a previous letter. These give good satisfaction. They are also turning out Bolthoff's ball pulverizers, which are reported on favorably.



This machine, I am told, will pulverize 15 tons in 24 hours so as to pass through a 60 screen. The shop is now filling an order for a 20-stamp mill and one for a 10-stamp mill for mines in the Territory.

The Black Hawk Foundry is owned by Langford & Co., and ably superintended by S. S. Davidson. The company employs 12 men and does general repairing, etc., giving good satisfaction.

Cash & Rockwell have chlorination works, which are not running at present, but which will be started up at an early day.

#### Mining.

I find that a number of the mines are closed down. The reason of this is not altogether obvious. One cause is undoubtedly a want of co-operation among the companies. The claims are often of small extent, and the shafts are deep. There is much trouble with water, and instead of making liberal arrangements with one another, whereby the cost of pumping might be greatly reduced, or of consolidating a number of claims, there is contention between the companies, especially those which are controlled at the East. Each one fears that the other may gain some advantage, and a "dog-in-the-manger" spirit is shown. Consequently no one gains, but all lose; many rich mines lie idle, which otherwise might be worked. The ores are certainly difficult to be treated; but I yet fully believe, that, by consolidation, or by making mutual concessions, Central City and vicinity might be turning out much more precious metal than is now yielded. I have talked with very many persons on the matter, and have received from them the impressions which I have just noted.

To show what I mean I have prepared the following table from figures to be found in a pamphlet on the "Treatment of Ores in Gilpen County," by Mr. G. W. Baker. The first column gives some of the principal lodes, the second the aggregate length, the third the number of "companies" owning claims (exclusive of "private owners"), the fourth the average length of claims of the companies, and the fifth the approximate aggregate of shafting. I am sorry that I cannot give also the number of shafts.

Gregory.....	Length. 4,750 feet	Co.'s 11	Av. claim. 432 feet	Shafts. 5,000 feet
Mammoth.....	3,000 "	5	278 "	1,600 "
Doetail.....	725 "	6	145 "	3,000 "
Gunnell.....	1,200 "	5	235 "	2,000 "
Burnoughs.....	3,000 "	11	253 "	5,000 "
Bates.....	1,500 "	5	250 "	2,000 "

This table summarized gives these re-

sults. On 6 lodes, developed for an aggregate length of some 14,000 feet (and up to a depth of 500 feet) there are at least (besides private owners) 42 companies, owning claims of an average length of 283 feet; and on these lodes shafts are sunk to an aggregate depth of at least 19,000 to 20,000 feet.

As far as I can see, the actual mining operations carried on are performed by people here who are independent, for the most part, of Eastern capitalists. If I have spoken of mismanagement, it has not been with any idea of throwing discredit on the people here, who are most active and energetic, and bound to work out their own salvation. I shall speak further concerning the ores, milling, etc.

W. H. M.

[To be Continued.]

### The San Diego Mines.

#### Julian District.

EDS. PRESS:—Since my last letter, so many favorable developments have been made in the mines of this region, that I can but make a commencement in this letter, to give you a history of our progress. D. M. Snyder, Morris & Co., of San Francisco, who some weeks ago bought two-thirds of the CALIFORNIA claim in this district, returned here last week and are busily engaged in getting out timber preparatory to straightening and permanently retimbering the shaft, and will soon commence sinking. I believe the intention is to sink 400 feet. The work is being prosecuted with energy and will no doubt soon develop one of the first-class mines. The ledge has varied from 18 inches to four or five feet in width. Some of the ore has yielded \$1 per pound in a hand mortar, and \$57 by mill process. The OWEN's mine, which is the original discovery on the same ledge as CALIFORNIA, is now down over 130 feet; ledge about three feet wide, showing free gold. This mine always has paid well. They have a new whim, the first in the district, which greatly facilitates the work of sinking.

The VAN WEST Co. (not Van West as you generally print it) have commenced running a tunnel to strike their ledge about 125 feet deep. This ledge is small but is rich; the small quantity of ore extracted has more than paid all expenses. The HAYDEN Co. are sinking an incline, rock paying from \$30 to \$38 per ton.

The SAN DIEGO No. 1, owned by McMechan, Fox & Co., are sinking a shaft and have good pay rock; the last crushing paying \$22 per ton. The HELVETIA Co. are still sinking their shaft, are now down 140 feet, and have first-class ore; in fact, the best average ore ever shown in the mine, and a good well defined ledge. All of these mines are on the same belt or range, including many others that prospect well, but are idle for the want of capital.

The new mill of GUNN & REYNOLDS started up yesterday, runs smoothly and will no doubt do good work, having, in addition to the five stamps, facilities for concentrating and an improved pan for working sulphurets and concentrations. If it proves a success, they will have more work than half a dozen mills of that size can do, in which case they are prepared to add such additional machinery as they may need.

The VIRGINIA Co. are working the Virginia ledge in "Coleman district," two miles west from here, are down about 20 feet, have a ledge of 18 to 36 inches wide, and all prospects well.

#### Banner District.

Since our enterprising fellow citizens, Wilcox, Webb & Horrell, have completed the new wagon road down San Felipe Cañon, to Banner City, it affords the citizens of Banner & Julian one of the best roads in the country for a pleasure excursion. The grade is very easy and the road shaded the greater portion of the way by pine, spruce, alder, and sycamore, making it delightfully cool and pleasant, with plenty of clear, cool water all the way down the cañon. San Felipe Canon is always cheerful and lively, having so many rich ledges with mills, arastras and hand mortars always running, that every man is a millionaire, and don't seem to care "whether school keeps or not." When they can't get their ore satisfactorily worked in the mills, they start an arastra; and when the ore is too good for that, they pound the best of it in a mortar. So they are sure of good returns.

The KENTUCK Co., under the superintendence of M. A. Lewis, controlled by McDonald & Whitney, of San Francisco, who have recently bought the mine, started up the work of sinking this week with full force, and on yesterday they struck some more of the rich ore for which that claim has been celebrated, being literally filled with gold. The MADDEN Co. on same ledge, have their usual amount of rich ore, and the ledge is improving every foot they sink. The last ore worked paid over \$40 per ton. The ANTELOPE Co., on the same ledge are still running their new 5-stamp mill on their own ore, paying \$70 per ton. The REDMAN mine, under the supervision of J. M. Tiernan, is looking well. In sinking the shaft, the ledge pitched to the west into the hill, where it was about 4 feet wide. Last week a new and small ledge made its appearance in the shaft, showing free gold and silver sulphurets. It has increased, until it now covers the bottom of the shaft, with slate intermixed. The prospects are very flattering indeed for a large and rich ledge, when the two ledges come together.

The additional machinery brought here and added to McMECHAN'S MILL, will probably be started up for regular work to-day. It consists of a 16-horse power engine, a Varney pan (latest improved), a large wooden concentrator, and copper shaking table of Tiernan's own invention. If they do not do first-class work, there is no use in having good machinery. Tiernan has shown himself a man of energy and competent to carry on such work. We want more of such men as he and Snyder, of Julian, and this country would soon have a character for rich mines second to no mining district on the coast.

The BAYLEY Co., on the south end of the Redman ledge, are taking out ore, to work by the new process in McMechan's mill. They have a large ledge and rich ore. The KINO ledge, GOLDEN CHARIOT mine and Co., are still sinking in rich ore, on their big ledge which at the depth of 50 feet is 4 to 5 feet wide. The LITTLE JOKER, which was 3 or 4 inches wide on top, of soft decomposed chalky-looking ore, rich from top to bottom, is now 48 feet deep, and 2 feet wide, with some ore, that report says is worth from two to five dollars per pound.

There are many other mines that I would like to mention, but it will require too much of your valuable space. I will close by simply saying, of all the mining districts on this coast, I have not heard of one that can show as many paying ledges and rich prospects, or as much work done and paid for out of the mines themselves, or from a like quantity of ore worked, that can show as good returns, with as good a climate, timber, water, and everything to make the locality desirable for health or a home, as Julian and Banner districts, San Diego county, California. Since McDonald & Whitney and Snyder, Morris & Co., have been interested in our mines, strangers and capitalists are coming in more freely and times looking up.

I have just heard from the STONEWALL, Capt. A. P. Frary's mine, and the ledge has enlarged to 12 feet in width and the rock is every pound worked and pays well, I will tell you more about it in my next letter.

Julian City, July 20, 1871.

L. B. H.

### A Handsome Acknowledgment.

MESSRS. DEWEY & Co.: We hereby acknowledge the receipt of the patent papers for our improvement in wheels for traction engines, and also the notice that the improvement on tubular boilers had been allowed; and in this connection we think we should exchange congratulations for the uniform success that has attended your applications for us, this being the twelfth patent we have obtained through your agency, within ten months, for our American Overland Steamer—a success due to the careful and full preparation of the cases before they leave your office, and a thoroughly live man to attend to them when they arrive in Washington; and perhaps we might modestly add, the intrinsic merits and originality of the ideas themselves. Such promptness and success in obtaining patents we think unparalleled.

Respectfully yours, O. HYDE & SON.

Oakland, August 1, 1871.

EUCALYPTUS LEAVES FOR DRESSING WOUNDS have been tried at a hospital in place of lint. The leaves which have a peculiar smell, are merely laid upon the wounds. Their balsamic nature not only aids in the curative process, but after a few hours all unpleasant odor from old wounds or sores, ceases to be perceived.



# MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### AMADOR COUNTY.

**THE STRIKE.**—The difficulties with regard to the strike seem to be over. No further difficulty is apprehended.

### ALPINE COUNTY.

**NEW MILL.**—*Miner*, Aug. 2d: The Tarshish Co. are to erect a mill for the reduction of their ores, forthwith.

### EL DORADO COUNTY.

**Mountain Democrat**, July 29th: H. Louis & Co., struck a rich streak in the 23d inch and took out \$400. On the next Friday they took out \$300 in one hour. This company has heretofore been laboring for very little pay.

### INYO COUNTY.

**BULLION.**—*Independent*, Aug. 2d: Wells, Fargo & Co., from the works of J. W. Mc Murray, at Fish Springs, 67½ ounces of gold bullion, valued at \$17 per ounce.

### NEVADA COUNTY.

**A BIG CLEAN UP.**—The Marysville *Standard*, June 29th says: The Blue Point Gravel Mining company, at Smartsville after a run of 44 days, cleaned up last Saturday \$23,000. Yuba county still maintains her reputation as having the richest mine in the State.

**MINING LOCATIONS.**—C. P. Purriington, and others, have located six claims on a Quartz ledge situated on Gold Flat, about one and a half miles from Nevada. Michael Byrne & Co. have located 800 feet on Democrat Hill.

**GRAVEL MINING IN GRASS VALLEY.**—*Union*, July 30th: The Altona Co., whose main tunnel is in 350 feet, is taking out gravel from a cross-cut south for the purpose of ascertaining the width of the lead; 50 feet gives no indication of the width of the lead in that direction. The gravel averages three to five feet in thickness and shows gold while being picked up by the miner, and the pay dirt, as hoisted, prospects from 25 to 60 cents to the pan.

The Hope Gravel is working as usual. J. Jeffrey is Superintendent and also supervises the Altona and Hope. Mr. Jeffrey is a practical miner and operator on Alta Hill for many years, and is posted in mining in that locality.

Alta Co. No. 3 is taking out gravel and cement, for the crushing of which a ten-stamp mill is in course of erection.

The Dartmouth company have erected a water mill for crushing the gravel they are taking from the upper strata of Alta Hill, but are unable to start up,—water for the purpose not being attainable.

**QUARTZ MINING IN GRASS VALLEY.**—Same paper says the Empire company has obtained a Government patent for their claims on Ophir Hill. The mill runs 12 hours out of the 24, and will be running on full time. The miners underground are rapidly opening up, so as plenty of ore can be used for crushing.

**SEVEN-THIRTY.**—This mine, after lying idle for some time, has again been started to work. The crushings we are informed have paid largely in addition to specimens. The company have taken measures to secure a patent for the mine.

**THE ERIE MINE**, located about a quarter of a mile north-east from the Seven-Thirty mine, or about four miles from Grass Valley, is owned by Talbot and Hunt, who do all their own work. Yesterday, July 29th, a clean up was made at the Gold Hill mill, of seven loads which had been crushed. The owners will push work in sinking and developing.

**THE DAISY HILL** continues to take out splendid ore. At a recent crushing of 35 loads—15 paid \$40 to the ton, and 10, \$53. The owners are developing the mine rapidly.

### PLACER COUNTY.

**STILL CONTINUES RICH.**—The *Herald*, Aug. 20th, says the strike made near the St. Patrick, of which we made mention two weeks ago, by some Swedish boys, Johnston & Co., holds good and is panning out terribly. Fifteen hundred pounds of the rock has paid about \$7,000; pounded out in a hand mortar.

**THE GREEN MINE.**—Same paper says: Some magnificent specimens have lately been taken from this mine. The mine is very rich where they are now at work.

The Bellevue mine is looking exceedingly well; have out 180 tons, estimated \$40 rock. The erection of a 15-stamp mill is recommended.

**RISEING SUN.**—*Stars and Stripes*, July

27th: Reports from this mine, near Colfax, are very favorable. A late two weeks' run yielded about \$6,000—the run for the month will reach \$12,000. Dividend for June, \$1 per foot; that for August will probably be \$3.

**GOLD RUN.**—Same paper says the mines here have organized to procure patents for their claims. Good reports are received from mines here.

**IOWA HILL.**—The miners in this vicinity are jubilant over the fact that the Von Schmidt enterprise will soon bring them an abundance of water, which will make valuable much mining ground that is now comparatively worthless.

**YIELD OF MINING GROUND.**—A correspondent of *Stars and Stripes* estimates the average past yield of ground per cubic yard, as follows: Iowa Hill, 71 cents; Independence Hill, 25 cents; Roach Hill, 60 cents; Richardson Hill, 15 cents, and Wisconsin Hill, 12½ cents.

**COST OF HYDRAULIC WORKING.**—Same correspondent says parties in Gold Run district estimate the cost of working there at 2 to 3½ cents per cubic yard. It is estimated that the cost of working at Iowa Hill will be 2½ cents; Independence Hill, 2 cents; Roach Hill, the gravel on which is much harder than in the other places named, 6 cents; Richardson Hill, 3 cents, and Wisconsin Hill 2 cents.

### PLUMAS COUNTY.

About Folsom, says the *Telegraph*, the miners are busy in all directions, sinking shafts, running tunnels, drifting and washing up. We hear of numerous good yields, amply sufficient if all were known to satisfy the most skeptical, that the mines about Folsom are by no means washed out.

**MILL BURNED.**—The Caledonia mill at Cherokee, was burned on Saturday, July 22d. It belonged to the Bank of California. The hoisting works, shops, etc., of the English Co., near by, were also destroyed.

### SAN DIEGO COUNTY.

**CLARK DISTRICT.**—Los Angeles intelligence says that the Clark District mines continue to attract attention, and very rich ore is being forwarded. Considerable ore is being shipped to this city.

**THE ZAPATA MINE**, on Sau Gabriel river, which has been worked with varying success for several years, is reported as increasing in its promise of prosperity, both as to the width of the vein and the quality of the ore. The placer diggings, also located on the upper San Gabriel, are said to promise well.

**SAN DIEGO** dates of the 20th say that reports from the Julian District are very favorable. The Redman mine struck a ledge ten feet wide, the ore of which pays \$100 per ton.

### SIERRA COUNTY.

**STRUCK GRAVEL.**—*Messenger*, Aug. 2:—Helmet & Co., working on Goodyear's creek, have got their tunnel into gravel which prospects very rich. The prospects are good for an extensive, paying claim.

### SOLANO COUNTY.

**QUICKSILVER.**—*Vallejo Chronicle*, July 29:—The new quicksilver mines are about four miles from Vallejo, and half a mile from the Sulphur Springs. The developments are so favorable that the owners, Barron & Co., of S. F., have decided to erect the proper furnaces, etc., for the reduction of the ores.

## Nevada.

### COPE DISTRICT.

**BULLION SHIPMENT.**—*Elko Independent*, July 29:—During the month of July, the shipment of bullion from Cope District through Wells, Fargo & Co.'s office, in Elko, amounted to \$15,605.

A correspondent of the *Independent* from the eastern part of the district gives encouraging reports from Spruce mountain, 40 or 50 miles south of Humboldt Wells; also from the Alabama district 35 miles south of Toano. Rough and Ready district, 7 or 8 miles from Thousand Spring Valley, shows good galena float. The same indications occur ten miles south. Efforts are being made to discover the ledges from which these specimens were derived.

Another correspondent of the *Independent*, writes as follows:—"From what I have seen of Railroad district, I am led to believe that it has before it an exceedingly brilliant future. Two rival cities are springing up there only three-quarters of a mile apart."

### ELY DISTRICT.

**BULLION SHIPPED FROM PICOHE.**—The *Ely Record* of July 20, says Wells, Fargo & Co. shipped, from July 14 to 18, through their agent, B. F. Sides, bullion valued at

\$37,270.92. That shipped during the quarter ending June 30th, was in value \$576,807.

### EUREKA DISTRICT.

**LARGE BULLION YIELD.**—*Sentinel*, July 30th: Two furnaces of the old, and two of the new pattern of the Eureka Consolidated produced in twenty-four hours, ending yesterday morning, forty-three thousand and two hundred and ten pounds, valued at \$390 per ton, making a total of \$8,425.

**NEW FURNACE.**—The Phenix Silver Mining Company is erecting a new furnace on the site of their old one, of enlarged size, and of a size altogether superior. It will be running in a few days, when rich bullion will be in great plenty to ship to San Francisco.

**NEW MILL.**—Parties from San Francisco have purchased a mill site below the Consolidated furnace, where they propose to erect a 20-stamp mill immediately. The milling ores of this district are attracting attention from capitalists, and we shall not be surprised to see this vicinity lead all other places in a few months in the amount of silver bars produced, as it now does all other places on the continent in base bullion.

**THE LARGEST SALE IN THE DISTRICT.**—The valuable mining and landed property of Geddes & Bertrand, situated in Secret Cañon, has been sold to San Francisco capitalists. The property is very valuable. Details will soon be made public.

**ANOTHER SALE.**—It is stated that the Richmond Mining Co. has disposed of all their property in this district to a company in London. A cable dispatch from J. J. Dnnne, is the foundation. We presume it is true, and that he will be at home in 20 days.

The Phenix Silver Mining Co. of this place, has levied an assessment of 50 cents per share. The large outlay in the purchase of mines and the building of a new furnace has made this course necessary. The large quantities of ore at the dumps, when smelted, will enable them to declare very considerable dividends at no distant day.

**MINERAL HILL ITEMS.**—The same paper says for the month of March last, the 15-stamp mill at Mineral Hill, cleaned up \$120,000 in silver bullion, and the average for each month since has been \$85,000. The mill is now stopped for want of water. To obtain a full supply of water hereafter it is proposed to lay pipes to Cave Creek.

The English Co. that has purchased the entire property of the old Co., has contracted with Booth & Co., to put up a 30-stamp mill, which is to be completed by the 8th of October next. Water for the mill will be obtained from Cave Creek, or from Dougherty or Cole's Creek.

George Attwood is at the present in charge of the affairs of the Co., and will remain until Mr. Lewis arrives. The latter will have charge permanently, of the affairs of the company, and will have the superintendence of the mill and mines.

**INCREASED IN VALUE.**—The Mineral Hill Co., of which Northey, Ward and three others were the discoveries were sold to Lent & Co., for \$500,000, and by them to another company for \$1,120,000, and they have sold to a London company for \$2,120,000. The mines of Eastern Nevada are becoming exceedingly popular in the Old World.

**FISH SPRINGS DISTRICT.**—This new district is situated about 18 miles southwest of Eureka, and the best road by which to get there is by Spring Valley, and then down Spring Valley Cañon where the water will be found and the camp of the prospectors.

The district was organized a few days since, and about 20 claims have been recorded. The claims are situated upon a low hill of a few acres, and the discoveries so far made do not cover but a few acres in extent.

The appearance now indicate, on the east side of the hill, that there are regular veins of quartz and the west side seems to be entirely carbonate and galena ores. The carbonates at the surface, assay from \$30 to \$35, while the galena has assayed as high as \$400.

### HUMBOLDT.

**PUEBLA DISTRICT.**—*Silver State*, July 29: Quite a number of men are at work in this district who are opening up some promising mines containing copper ore, with silver and gold. The nearest point to the railroad is 80 miles. The country is also filling up with stock growing and has a large amount of valuable grazing lands.

**FROM RELIEF DISTRICT** encouraging reports are received. The Pac. Co.'s mill is nearly completed and will soon be crushing. Many hundred tons of rock are ready for it.

**ITEMS.**—The Banner mine in El Dorado

Canon has fallen into new hands, from which much is expected.... This season will witness more of the old mines made valuable, than all the previous years since the mining excitement of 1864-5.... New gold placer diggings are reported in the Flat Creek county. It is supposed there are big things there.... A furnace is to be built by the Arizona Mining Co., at their new tailings mill. The bullion shipped from this mine for the past week was \$8,295.

**THE SHEBA.**—The developments in this mine has encouraged the De Soto folks to resume work, and their prospects are very flattering.

### REESE RIVER.

**MINING SALE.**—The most important purchase of mining property ever effected in this district, says the *Reese River Reveille*, was made by the Manhattan S. M. Co., of Nevada, on Saturday last. The property was bought at Sheriff's sale, for \$60,000 in currency, and is cheap, for it comprises 40 different and distinct locations, all of them made during the first months after the discovery of the Reese River country.

### WHITE PINE.

ONE of the richest strikes ever made in the district, says the *White Pine News* of July 24, was made on Saturday morning in the Original Hidden Treasure mine. We saw some of the ore (said to be an average) brought down for assay. To use a miner's phrase, it was perfectly lousy with chloride, horn, ruby, and native silver. An assay made by Smolz, of McCollough & Co.'s assay office, gave the figures of \$3,635 per ton—and 3½ pounds smelted by him gave a bar of silver 968 fine, weighing 4.40 ounces. The face of the ore is over eight feet in width, with a depth and an extent unknown. Treasure Hill is panning out heartfully.

### WASHOE.

**BULLION.**—Gold Hill *News*, July 27th: Bars to the value of \$44,000 were received at the Bank of California, Virginia, principally from the Yellow Jacket and Crown Point mines.

**CHOLLAR BULLION.**—The bullion shipment from the Chollar-Potosi mine last Friday amounted to \$42,000.

**ORE YIELD.**—Same 27th: Last week 2,250 tons of ore was extracted from the Savage mine, the average assay value of which was \$33 per ton. The Hale & Norcross yielded 439 tons.

**ITEMS.**—The Gould & Curry shaft is now down 1,285 ft., ground working favorably, and good progress is made. A new station will be opened at the 1,300-foot level.... Considerable low grade ore is being taken from the old upper workings of the Kentuck mine, and the 600 and 700-foot levels also yield plenty of ore of a high grade. The 400-foot level is being opened out for practical working.... The Caledonia mine is yielding a superior quality of ore from the breasts between the 200 and 300-foot levels.... The Buckeye mine is yielding no ore at present, but the drifts north and south from the old incline show considerable ore of good quality.

**THE SUTRO TUNNEL COMMISSIONERS.**—Says the *Virginia City Enterprise*, are quietly pursuing their investigations, and have visited most of the mines on the Comstock lode. Their report will be one of the highest value to our mining interests. The investigations are not confined to the Comstock lode, but also embrace the county east and west, and they have visited several of what are called outside claims.

**LADY BRYAN.**—Same of 30th: An excellent body of ore is said to have lately been developed in the south portion of this mine. They expect that their next run will be better than any yet made, as the ore assays better than any they have yet worked—over \$100 per ton.

**SALES OF MINING PROPERTY.**—Messrs. Parke & Bowie have bought the old Gould & Curry mill, with all the out-buildings roads, etc., appertaining thereto.

The Crown Point Co. has bought the Yellow Jacket or Morgant Mill, on Carson river. The old machinery, with water wheel is to be removed and new machinery, with steam power will be substituted. This change from water to steam in this mill will be favorable to the Mexican mill above and Brunswick below.

**OVERMAN NEW SHAFT.**—Work will be commenced immediately on the Overman shaft, to be sunk at a point 1,500 feet east of their present shaft. Mr. Myrick, the Superintendent, says he will have the shaft down 300 ft. within sixty days. At the depth of 800 ft. the first drift for the vein will be started. This is the best move the Overman folks could possibly have made, as they will see before eight months have passed.

**BUCKEYE MINE.**—In cleaning out the old



incline of this mine, a body of excellent quartz, some eight feet in width, has been found. The ore taken from the deposit in early days was thrown out upon the dump with the waste rock, but afterward outsiders found it there and overhauled the dump, collecting and sending to the mill all they could find of it.

The Sierra Nevada mill is running day and night upon ore from the Co.'s mine. The ore is of a low grade, but the supply is almost inexhaustible.

The Santiago Mill situated on the Carson, has been thoroughly overhauled. The two old water-wheels have been torn out and a new double turbine substituted, and everything about the mill has been put in first class order.

Arizona.

CASTLE DOME mining district, according to the San Diego Union, continues to improve. The 'Flora Temple,' has some 400 tons ready to sack, which assays about \$90 to the ton. The 'Flora Tweed' has a belt of metal 3 feet 9 inches, and widening. The 'Jack Hamilton' has struck it rich.

RICH PLACERS, it is thought, according to a correspondent of the Miner exist in the eastern district of Central Arizona. In the year of 1861, Mr. Thomas Miner was one of a company of miners who went on a prospecting expedition into that hitherto unexplored region. They found placers which, in Mr. Miner's opinion, will yield from \$20 to \$150 per day, to the man, by sluicing, and extending over an area of country sufficient for 5,000 miners, or more, with timber and water in abundance. They were permitted to remain in the mining district only some two months, on account of the Indians. Since that time Mr. Miner has made several unsuccessful attempts to raise a company to get back, but has never had promise of success till within a short time. A company of 48 names is now enrolled to start from Bradshaw. It is expected the number will be increased to 80 before they start. Important developments are expected for this expedition.

Colorado.

MILL BURNED.—The Washington mill, at Georgetown, was burned on Thursday, the 20th ult.—cause accidental—started in the engine room. The mill will be immediately rebuilt on an improved plan.

IDAHO DISTRICT.—Favorable reports are received from this district.

NEW FURNACE.—Central City Herald, July 26th: F. W. Crosby has put up a 20-ton furnace at the Peck mill, in Empire—will be in operation next week. Parties in placer mining are doing well about Empire.

A STUPENDOUS ENTERPRISE, organized some time since by Manson Shelton, Frank A. Pope and John Burkholder, for the purpose of prospecting both slopes, north and south faces of Leavenworth mountain, by boom ditching, has been in operation for some time. Five cuts have been made on the north slope of the mountain, in one of which the debris has been stripped to the bed-rock and ten loads laid bare. Ten good lodes discovered on Leavenworth mountain! Here is encouragement for the completion of the Helmick Tunnel.

CARIBOO—GRAND ISLAND DISTRICT.—Same paper says: A large amount of ore is coming to Hill's from Cariboo. About midway between Cariboo and Pomroy mountain a new group of lodes has been discovered on which promising developments are being made.

ITEMS.—The Boulder County lode is coming out finely. It is rumored that E. V. Smith is about to buy the Trojan mine, and put machinery thereon. Ore has been taken from the Carlo, from which a \$600 assay has been made.

NEW REDUCTION WORKS, ETC.—Cariboo Post, July 22d: We hear that Corning & Co. purpose the erection of some kind of reduction works at the French boy's ranch on the north Boulder. Much interest is centering on that mining section. The Boulder lode, owned by Conger & Stevens, is one of the most promising locations on the Grand Island silver belt. Encouraging reports are received from Long & Halverson's stamp mill north from Ward. There are splendid mines there. The Morning Star lode is a brilliant promise. The Idaho is bound to shine in more than former splendor. Good smelting ore is accumulating on the dump of the Potosi.

SUMMIT COUNTY.—Central City Register, July 26:—There are many promising gulches about Ten-mile creek, some of which will pay \$10 per day to the hand. Immense wealth has been taken from the famous McNulty Gulch, near its head. A ditch 10 ft. wide and 2 ft. deep, to carry 5,000 inches of water is being constructed to work some of these mines.

Effects of Sulphur on Wine.

In a late issue we gave Prof. Weidenman's opinion of what became of the sulphur used upon the grapevine—that it was converted into sulphate of lime (gypsum) by uniting with the lime in the soil, and thus continued its beneficial action as a manurial agent. But it appears from De la Vergne's "Practical Instructions" in the manufacture of wine, that all the sulphur does not find its way to the soil. That author says:—

A bad flavor is sometimes communicated to wine from the remains of sulphur on the grapes, and serious objections to the use of the remedy were at one time raised on this account. This taste it has, however, been found easy to get rid of by drawing off. If one operation does not suffice, a second in the manner described below will be sure to succeed.

Rinse carefully your empty cask, first with cold and then with warm water, then again with cold, for every forty gallons it will hold, pour in a quart of clean water, and leave it there. Burn within the cask, for every forty gallons it will hold, one square inch of rag or wick incrustated with sulphur by being dipped in it while molten; close the bung tightly, and roll and shake the cask to let the water within it absorb well the vapors of sulphurous acid produced by the burning. Into the cask thus prepared, draw your wine, doing this by means of buckets, and not by any of the modes contrived to exclude the air, since contact with it helps to disinfect the wine.

But be careful to leave all lees behind; therefore do not tip the cask. The thicker wine remaining with the lees must be settled by putting it in a smaller vessel, and then drawing off by itself in the same way as the other. Any portion of the lees carried into the fresh cask under the influence of a slight subsequent fermentation, will again form sulphureted hydrogen, which constitutes the bad taste in question.

To the above the editor of the Western Pomologist adds as follows:—

This sulphureted hydrogen decomposes when brought in contact with the sulphur-coated rag or wick, and thus the objectionable flavor passes off. But it will be slight enough to go away in the ordinary drawing off which must necessarily be performed for other purposes, unless sulphur has been applied to the vines late in the season, and in needlessly large quantities, and no heavy rain has come to wash it off, nor sufficient heat intervened to vaporize it away. But the slightest inconvenience of this sulphur flavor, so easily got rid of, is an inconsiderable evil compared with what results when, in absence of the proper remedy, the mildew, or its remains, passes into the wine. For which reason it is always well to sulphur vines whenever any considerable attack of the disease occurs late in the season, even though it comes too late to injure the fruit; for by fastening on such parts of the fruit-stems as yet remain green, it can maintain a foothold until vintage, and so find entrance into the press or vat.

M. Mares thinks the small quantity of sulphurated gas that will ordinarily be found in the new wine is valuable to preserve it, and thinks, too, the wine made of sulphureted grapes is more even in quality, has a brighter color—very important in red wine—and keeps better than any other wine.

De la Vergne thinks the time will come when those who buy wine of the producer will be glad to hear him say:—"My vines were thoroughly sulphured," and we all know that in commerce it has long been the custom to fumigate wine casks, without complaints being made of any bad effect resulting therefrom.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

EXCELSIOR MANUFACTURING CO.—July 31. Capital Stock, \$300,000 in 3,000 shares. Trustees: S. B. Boswell, J. Y. Wilson, W. LeRoy, W. L. Merry and C. T. Forrest.

CROWN POINT SOUTH EX. M. Co. Gold Hill, Nev.—Aug. 1. Capital Stock, \$1,000,000, in 10,000 shares. Trustees: C. J. Brenham, A. J. Moulder and W. B. Johnston.

Meetings and Elections, Etc.

CALIFORNIA M. Co. Trustees: D. D. Colton (President), M. S. Latham, J. D. Fry, H. K. White and G. Wallace (Secretary).

CAMP FLOYD S. M. Co.—Trustees: G. Hearst (President), W. Thompson, Jr., G. S. Dodge, A. E. Head and F. W. Eaton. Secretary, W. Willis.

Mining Stock Market.

[San Francisco Stock and Exchange Board.]

THURSDAY EVE., AUG. 3, 1871.

The mining stock market was quite steady at the end of last week, then prices gradually declined with somewhat of a reaction on Wednesday. Amador has sold at \$285. Eureka fell from \$20 to \$11 and then rose to \$17 1/2.

The following table gives last Thursday's quotations compared with to-day's, and the highest and lowest points reached by the several descriptions of stock during the week.

	July 27 Highest.	Lowest.	Aug 3 Adv.	Dec.
Alpha.....	3 1/2	5	5	5
Belcher.....	2 1/2	3 1/2	3 1/2	3 1/2
Chollar-Potosi.....	3 1/2	3 1/2	3 1/2	3 1/2
Crown Point.....	3 1/2	3 1/2	3 1/2	3 1/2
Eureka.....	15	11	15	15
Golden Chariot.....	3 1/2	3 1/2	3 1/2	3 1/2
Gould & Curry.....	115	120	115	120
Hale & Norcross.....	8 1/2	8 1/2	8 1/2	8 1/2
Imperial.....	36	35	34	34
Kentuck.....	115	110	112	112
Meadow Valley.....	19	20	19	20
Phelps.....	10	11	10	11
Orig. Mid. Treas.....	8	8	8	8
Overman.....	7	7	7	7
Savage.....	41	41	41	41
Yellow Jacket.....	45	45	45	45

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DAY	ASSESSMENTS	DATE OF ASSESSMENT	DELINQUENT	DATE OF SALE
Buckeye, Lyon Co., Nev.	\$1.00	July 19	\$1.00	Aug. 22—Sept. 6
Cons. Vir. Stony Co., Nev.	\$1.00	July 19	\$1.00	Sept. 5—Sept. 21
Onsey, Lyon Co., Nev.	\$2.50	July 15	\$2.50	Aug. 5—Aug. 14
Eagle M. Co., Cal.	\$20.00	June 14	\$20.00	Aug. 9—Aug. 14
Hale & Norcross, Va.	\$1.00	June 29	\$1.00	Aug. 1—Aug. 19
Highland S. M. Co., Nev.	\$1.00	July 13	\$1.00	Sept. 1—Sept. 11
Jelinson Lubricator Co., Ariz.	\$1.00	Sept. 7	\$1.00	Sept. 28
Mahogany, Owyhee Co., I. T.	\$1.00	July 25	\$1.00	Aug. 28
Marble Falls, Nye Co., Nev.	\$1.00	July 12	\$1.00	Sept. 15
Marcolina, Nev.	\$2.00	June 21	\$2.00	Aug. 1—Aug. 13
Meadow Valley Ex. Co.	\$1.00	Aug. 14	\$1.00	Sept. 11
North American Con. M. Co.	\$1.00	July 31	\$1.00	Sept. 30
Mountain City M. Co.	\$1.00	July 18	\$1.00	Aug. 8
Nevada Butte, Battle Mt., Nev.	\$1.00	July 15	\$1.00	Aug. 22—Sept. 16
Nonaday, White Pine, Nev.	\$1.00	Aug. 21	\$1.00	Sept. 18
Nevada Land & Min. Co.	\$1.00	July 26	\$1.00	Aug. 29—Sept. 20
Ophir, Va. City, Nev.	\$1.00	Aug. 16	\$1.00	Sept. 8
O. H. Treasure, Nev.	\$1.00	Aug. 9	\$1.00	Sept. 2
Overman, G. H., Nev.	\$1.00	Aug. 31	\$1.00	Sept. 18
Phenix, Lander Co., Nev.	\$1.00	July 24	\$1.00	Aug. 28—Sept. 19
Seg. Belcher, G. H., Nev.	\$1.00	Aug. 23	\$1.00	Sept. 11
Shipley, Placer Co., Nev.	\$1.00	Sept. 6	\$1.00	Sept. 27
Summer, Kern Co., Nev.	\$1.00	Aug. 18	\$1.00	Aug. 28
Sumner, G. H., Nev.	\$1.00	Sept. 4	\$1.00	Sept. 28
Tallula, Humboldt Co., Nev.	\$1.00	July 27	\$1.00	Sept. 19
Taylor, El Dorado Co., Nev.	\$1.00	July 12	\$1.00	Aug. 4
Taylor M. & M. Co., Cal.	\$1.00	July 10	\$1.00	Aug. 4
Virginia M. & M. Co., W.P.	\$1.00	July 25	\$1.00	Sept. 20

MEETINGS TO BE HELD.

Eastport Coos Bay Coal.....Adjourned Meeting, Aug. 18  
Ida Elmore.....Annual Meeting, Aug. 17  
Meadow Valley.....Annual Meeting, Aug. 17  
Mohawk & Montreal.....Adjourned Meeting, Aug. 22

LATEST DIVIDENDS—(Within Three Months).

Chollar-Potosi, \$2.....	Payable July 11
Chollar Potosi, \$5.....	Payable May 20
Crown Point \$10.....	Payable June 10
Eureka, div. \$2.....	Payable May 7
Eureka (Cal.), \$1.....	Payable July 7
Eureka Cons. \$2.....	Payable April 20
Golden Chariot, div. \$7.....	Payable March 10
Hale & Norcross, div. \$5.....	Payable April 10
Meadow Valley.....	Payable July 15
Natoma, div. 1 per cent.....	Payable Aug. 5
North Star, \$3.....	Payable May 10
Overman.....	Annual Meeting, July 13
Redding.....	Payable Aug. 5
Yellow Jacket, \$2.....	Payable July 10
Yule Gravel, 50 cts.....	Payable Aug. 4

\*Advised in this journal.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.	
City Tanned Leather, #1.....	25 00
Santa Cruz Leather, #1.....	26 00
Country Leather, #1.....	25 00
The French calf, remains the same. California hides are higher and in demand.	
Jodot, 8 Kil., per doz.....	\$62 00
Jodot, 11 to 15 Kil., per doz.....	\$62 00
Jodot, 16 to 19 Kil., per doz.....	\$60 00
Levin, 12 and 14 Kil., per doz.....	\$60 00
Cornellian, 12 to 14 Kil., per doz.....	\$60 00
Oregon calf, #1 doz.....	54 00
Merced calf, 16 Kil., per doz.....	65 00
Robert calf, 1 and 8 Kil.....	35 00
Common French calf Skins, #1 doz.....	35 00
French Kips, #1.....	1 00
California Kip, #1 doz.....	80 00
Eastern Wheel Stuffed calf, #1.....	1 00
Eastern calf for Backs, #1.....	1 15
Sheep Hides for Topping all colors, #1 doz.....	8 00
Sheep Hides for Lining, #1 doz.....	5 00
California Russet Sheep Linings.....	1 50
Best Jodot calf Foot Legs, #1 pair.....	5 00
Good French calf Foot Legs, #1 pair.....	4 00
French calf Foot Legs, #1 pair.....	4 00
Harness Leather, #1.....	30 00
Fair Bridle Leather, #1 doz.....	48 00
Shirking Leather, #1.....	30 00
Wet Leather, #1 doz.....	30 00
Buff Leather, #1 foot.....	17 00
Wax Side Leather, #1 foot.....	18 00

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

San Francisco Retail Market Rates.

FRIDAY, AUGUST 4, 1871.

MISCELLANEOUS.	
Butter, Cal. fr. lb.....	45
Pickled, Cal. fr. lb.....	35
Oregon, D. do.....	35
Honey, #1 lb.....	25
Bees, #1 doz.....	30
Eggs, per doz.....	35
Lard, #1 lb.....	18
Sugar, cr. 60 lb. doz.....	13
Corn, do. 100 lb. doz.....	10
Beet, do. 100 lb. doz.....	10
Sugar, Map. lb.....	25
Plums, dried, #1 lb.....	15
Peaches, dried, #1 lb.....	25

PRODUCE, ETC.	
Codfish, dry, lb.....	6 00
Flour, ex. 50 lb. doz.....	75
Superfine, do. 50 lb. doz.....	75
Corn Meal, 100 lb. doz.....	25
Wheat, #1 100 lb. doz.....	22 1/2
Oats, #1 100 lb. doz.....	22 1/2

FRUITS, VEGETABLES, ETC.	
Pine Apples, #1 doz.....	50
Bananas, #1 doz.....	30
Oranges, #1 doz.....	25
Apples, #1 doz.....	25
Crabapples, #1 doz.....	25
Apples, #1 doz.....	25
Red Astrakhan, #1 doz.....	25
Red June, #1 doz.....	25
Pears, table, #1 doz.....	25
Plums, #1 doz.....	25
Apricots, #1 doz.....	25
Currants, #1 doz.....	25
Raspberries, #1 doz.....	25
Strawberries, #1 doz.....	25
Blackberries, #1 doz.....	25
Oranges, #1 doz.....	25
Lemons, #1 doz.....	25
Limes, #1 doz.....	25
Figs, dried, #1 doz.....	25
Almonds, #1 doz.....	25
Apricots, #1 doz.....	25
Artichokes, #1 doz.....	25
Brussels' sprouts, #1 doz.....	25
Beets, #1 doz.....	25
Potatoes, #1 doz.....	25
Broccoli, #1 doz.....	25
Cauliflower, #1 doz.....	25

POULTRY, GAME, MEATS, ETC.	
Chickens, #1 doz.....	75
Turkeys, #1 doz.....	20
Ducks, #1 doz.....	20
Hams, #1 doz.....	20
Teal, #1 doz.....	20
Geese, #1 doz.....	20
Time, #1 pair.....	20
From, #1 pair.....	20
Hens, #1 doz.....	75
Snipe, #1 doz.....	75
Squirrels, #1 doz.....	75
Veal, #1 doz.....	75
Pigeons, #1 doz.....	75
Partridges, #1 doz.....	75
Hares, #1 doz.....	75
Rabbits, #1 doz.....	75
Squirrel, #1 doz.....	75
Beef, #1 doz.....	75
Steak, #1 doz.....	75
Pork, #1 doz.....	75
Chops, #1 doz.....	75
Veal, #1 doz.....	75
Cutlet, #1 doz.....	75
Mutton chops, #1 doz.....	75
Lamb, #1 doz.....	75
Tongues, #1 doz.....	75
Tongues, #1 doz.....	75

\* Per lb. \* Per dozen. \* Per gallon.

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, July 22, 1871.

IRON.	
Pig, Scotch, No. 1 (cash), per ton.....	\$33 00
Pig, American, No. 1 (cash), per ton.....	35 00
Pig, American, No. 2.....	30 00
Castings, ordinary sizes.....	105 00
Common.....	75 00
Refracted.....	71 00
Rolls.....	75 00
Horse-shoe.....	95 00
Hoop.....	100 00
Scrap.....	100 00
Spring.....	7 1/2
Tire.....	7 1/2

STEEL.	
Bars, best cast, warranted, #1.....	18 00
Sheet, best cast.....	16 00
Sheet, second quality.....	15 00
Sheet, third quality.....	12 00
Bars, plates, circular.....	18 00
Double-shear, warranted.....	18 00
Single-shear.....	15 00
Montague & Co. (cast bars).....	11 00
German, best.....	11 00
German, goat.....	10 00
German, eagle.....	10 00
Slater, common.....	10 00
Jessop & Sons' common.....	25 00
Quiche-rolled.....	25 00
Stone at shapes.....	25 00

SUNDRIES.	
American Lead, #100 lbs.....	7 50
German.....	8 00
Pipe and Sheet.....	8 50
Muselman and American Zinc, #1.....	9 1/2
Timothy.....	16 00
Spelter.....	16 00
Copper, old.....	17 00

We were happy to receive a call to-day from Wm. H. Murray, special traveling agent and correspondent of the well known and ably conducted Scientific Press of San Francisco.

This is the best practical mining journal in the United States, and should find a welcome in every household. Mr. Murray is here on business connected with the paper, and will canvass this county for subscribers before his departure.

We cheerfully recommend the Scientific Press to our readers as worthy of their support and patronage.—Central City Herald, Colorado.

WOODLAND, July 14, 1871.  
DEWEY & Co.—Gents: I received the interesting paper on my improved wagon all right, and I return thanks for the promptness with which you pushed it through.

Respectfully, C. ELLIOTT.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost, \$67.50. Part of the money may be paid in installments. By a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at John I. Tay's, Broadway, Oakland. apl-4t-4f

\$5 TO \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-Strand White Wire Clothes Lines, to last forever. Don't raise this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 16 Dearborn street, Chicago, Ill. 23vl-12mbp

LADIES DESIRING TO PURCHASE A FIRST-CLASS SEWING Machine at easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York. Good work at high prices if desired. 23vl-12mbp



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JULY 18TH.

SIDE-HILL PLOW.—Daniel C. Day, San José, Cal.

WELT-TRIMMER FOR BOOTS AND SHOES.—Joseph H. Allen, Wadsworth, Nevada.

FARM GATE.—Michael Barthel, San Francisco, Cal.

APPARATUS FOR SAVING GOLD, AMALGAM, ETC.—George R. Evans, Virginia City, Nevada.

PROJECTILE.—Thomas Hill, Vallejo, Cal.

TRACTION-WHEEL.—Oliver Hyde, Oakland, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

### Railroad Matters.

#### Oregon and Washington.

Work seems to be pushing on the Northern Pacific, and we see it announced that the company have difficulty in getting the requisite number of workmen. Some 750 men are employed on the western division, and the 25-mile section is to be finished in October. Besides this, it is affirmed that the road will reach Puget Sound early next summer. Eastern papers say that a good route has been found through Central Dakota, striking the Missouri near the mouth of Hart river. A party is soon to leave Kalama to survey a route from the Yellowstone to the Snake river.

The Portland, Dalles and Salt Lake R. R. project is still being agitated in the Oregon papers, and it is said that Congressional aid will be invoked at the next session.

The Willamette Valley (late Oregon Central or West Side) R. R. Co. is grading and track-laying. That part between Portland and Hillshoro was reported as rapidly progressing at last accounts. Preliminary surveys are being made on the Columbia and Willamette R. R.

On the Oregon and California R. R. work is pushing rapidly, and 180 miles south of Portland are promised to be in running order by the end of the year. A line has been run through Oakland, Douglas county, and the cars are to run into Eugene by the middle of August.

#### California.

On the California and Oregon road, a large force was put at work in the beginning of June, at Tehama, one hundred and twenty-seven miles from Sacramento, to which point the road was completed last year. The bridge here was to be built in about six weeks, and then grading was to be done up to Red Bluff, with a chance of reaching Shasta this year. The Yreka Journal of July 28th, says: Hood and party, surveyors for the Central Pacific Railroad Company, have commenced preparations for another survey of the railroad route through Shasta valley. It is believed they are now laying out the permanent route, which will run down Shasta river, on the opposite side of the hill east of town, and proceeding along the valley about two miles east of the Little Shasta bridge, or about eight or nine miles east of Yreka.

On July 19th, certificates of incorporation were filed of the Northern R. R., for an "air line from San Francisco to Tehama." The officers are officers of the Central Pacific, who have also organized the San Pablo and Tulare R. R. Co. The rails for the Tehama road are said to have been received.

The great railroad topic of late has been the rumored purchase of the California Pacific by the Central Pacific, or of both by the Pennsylvania Central. The city papers give more credence to the former; Eastern and Sacramento papers to the latter rumor. The California Pacific has stopped work on the Sonoma extension between Adelante and Petaluma, and the survey has ceased on the line between Davisville and Red Bluffs. The southern coast steamship opposition (between here and the southern counties) is also reported purchased by the Central Pacific, and their

vessel has been laid up (temporarily it is stated, but without announcement of resumption of her trips), while fares on the other line have been advanced. It is said that the air-line from Sacramento to San Francisco will still be built, and that contracts therefor have been awarded.

The effect of any such consolidation will have a very great influence on this State. It very likely will lead, among other things, if the Central Pacific is the purchaser, to the more speedy completion of the Southern Pacific, while it will put off the building of some other proposed lines.

The Sacramento Record is informed that the Central Pacific Railroad Company has bought the Placerville Railroad, which extends from Folsom to Shingle Springs, and will take possession of the same immediately.

Humboldt county has a plan for a road from Eureka to Singler's Ferry, on Eel river, to be built by November, and thence to be carried to the mouth of Van Dusen's Fork. For this a subsidy in the shape of a levy of 5 per cent. on the taxable property of the county was asked. This road was to be a link of the Santa Rosa and Petaluma road, which was to extend through Mendocino county to Humboldt Bay. The proposition was voted on at an election held July 29th.

On the Southern Pacific ground has been broken for the branch from a point two miles south of Gilroy to

stated that the Eastern Nevada (Elko to Hamilton) narrow gauge road will be built, the necessary consent of the Central Pacific and of the tax-payers having been obtained.

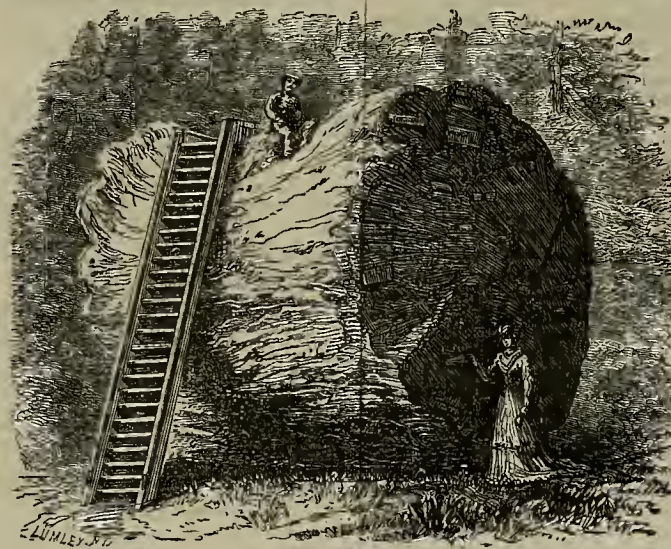
On July 26th, the first 20 miles of the Utah Southern R. R. had been let, and the track was laid as far as Little Cottonwood.

The Omaha Herald, of June 20th, announced the departure of a party of surveyors to locate a road from Evanston, Wyoming, north along the Bear River valley, then westerly along the Snake river to Helena and Virginia City, Montana, and thence to tap the Northern Pacific.

#### Colorado.

The Boulder Valley road was to be graded to Boulder Valley by the end of July. The Denver and Rio Grande is pushing rapidly, the delay in receiving the iron being the only drawback. This road is attracting very great attention on account of being of narrow gauge. From the Denver Tribune we learn of a new 3-foot gauge road, the Kansas Central, which is to run from Leavenworth, Kansas, to Denver.

According to the Central City Register, the matter of a road thither from Golden is rapidly assuming shape. The U. P. R. R. will build it if Gilpin county will vote bonds to the amount of \$250,000. Concerning several Colorado roads, the letters from W. H. M., which we have lately



SECTION OF MAMMOTH TREE.

Watsonville and Castroville. Commissioners have been appointed at Washington to examine the 20-mile section already completed.

A party of railroad men interested in the Atlantic and Pacific R. R. have gone over the line surveyed along the coast from this city southwards, and are reported favorably impressed with the project. They say that the road will be built if local assistance is given.

In the middle of June, work was recommenced on the San Joaquin Valley road, by building a bridge over the Tuolumne, at Modesto, and grading on towards the Merced river. The bridge with approaches is 1,320 feet long. Track was laid across the bridge on July 19, at which time 15 miles of road beyond the river were ready for the rails.

On the Stockton and Visalia road three or four hundred men were at work at last accounts. The Modesto News has said that the C. P. R. R. were to build a branch road from that town eastward towards the Sierra.

The Antioch Ledger has published a report of the surveyors of the proposed Antioch and Visalia R. R., which, the paper asserts, will be built with the aid of Eastern capital.

#### Nevada—Utah—Wyoming.

On the Virginia, Carson and Reno Railroad the final survey was finished, and grading commenced, at the beginning of July, at the Reno end. On the 18th, 400 yards of track were laid; and by the middle of October the road is to be in running order from Reno to Steamboat Springs. A large force is at work on the bridge over the Truckee.

The Reno State Journal states "on good authority" that the narrow gauge road from that place to Virginia City will yet be built. A narrow gauge from Reno, via Carson, to the Cerro Gordo mines, and one from Reno via Beckworth's Pass to Plumas county, Cal., are proposed. It is

published, give very considerable information.

### The Mammoth Trees of California.\*

Tell a Bostonian that, if he will build an addition on top of his cherished Bunker Hill monument, so as to increase the height of this structure about one-half, he will get an edifice as tall as some of our Big Trees,—tell him this and he will consider you an excellent joker and much given to stories which ought, according to an old-time and popular saying, to be reserved "for the marines." Yet one would be sufficiently near the truth in making such a statement, which, moreover, would give people at the "Hub" some adequate idea of the height of the giants of our coast.

To give a real perception of these monoliths is a difficult task. We have given in private letters to our friends the various dimensions without producing any visible impressions. The last time we were at the Calaveras Grove, we adopted the suggestion of a friend, which resulted more successfully. We passed a thread, as high up as we could reach, around the trunks of some of the trees standing, cut it off just the circumference obtained, and sent the lengths to a few Eastern curiosity-collectors of our acquaintance, giving the facts. These people laid out the threads in as near a circle as practicable and thus obtained an idea of the size of the trunks. Knowing our undoubted veracity, they could not but be astonished.

For the benefit of our readers, to whom we can send no such evidences, we give today a representation of a section of a mam-

moth tree in the Calaveras Grove. The human figures will give some idea of the relative size of the monster.

The Calaveras and Mariposa groves are the best known to tourists. The latter has one tree, the Grizzly Giant, which surpasses in many respects any which we have seen. The Calaveras grove is, however, perhaps the more enjoyable. The excellent hotel of Messrs. Perry & Sperry (we do not care to puff such things generally, but every one praises this) is situated directly at the grove, so that one can enjoy the grove at leisure. Here are said to be 103 trees of goodly size, twenty of which are about 75 feet in circumference, in a comparatively small area. We shall not give many statistics, for we find that figures alone carry too little idea of the reality. Suffice it to say, merely, that the now fallen "Father of the Forest" is estimated to have been at least four hundred and thirty-five feet high.

There is another grove—the south grove—about six miles off, which is said to be larger than the one near the hotel.

California has a number of such groves, the most definite statements of which are to be found in the publications of our State Geological Survey. Our impression is, that a grove in Tulare county is said to have the finest trees. Space forbids our enlarging on the topic, to which, however, we may recur hereafter.

\*Our illustration is from the Scenes and Wonders of California, by J. M. Hutchings. A. Roman & Co., Publishers, San Francisco.

### A Great Orchard.

A few days ago it was our pleasure to visit the orchard of John Briggs, located about two miles south of Yuba City, in Sutter county. The proprietor is the owner of 426 acres, mostly bottom land, lying along the west bank of the Feather river. The soil is a rich, sandy loam, and composed of the yearly deposits of the river many years ago. Before reaching the orchard proper, we rode through a field of 150 acres of castor beans, which field is to give place to a new orchard next year, the fruit trees for the same at present growing in a nursery containing 25,000 one-year-old huddled peach trees, 16,000 plum trees, 6,000 Eastern walnuts, 25,000 California walnuts, 2,000 apple trees, 500 Italian chestnut trees, etc. Passing along through this, we arrived at the present peach orchard, consisting of 600 trees, two years old, and some of them bearing this season 150 pounds of peaches. These trees have made a remarkable growth, owing to the rich ground upon which they are planted, and in another year will make a tremendous yield of fruit. Passing the peach orchard, we reached the apricots, 2,200 in number, which are also two years old, and have borne a fair crop the present season. We next rode into the cherry orchard, containing 3,000 of most thrifty young trees. The different varieties, 15 in number, gave this orchard a variety of aspect. These cherry trees were all imported from Rochester, N. Y., about three years ago. Off to the south of this wonderful wilderness are 2,500 plum trees of twelve varieties, and 500 apple trees, mostly of winter varieties. On returning from the orchard by the wagon road we had entered, we visited Briggs Brothers' steam power castor oil mill. Here we found a magnificent hydraulic press, with 80 pound pressure, and possessing a capacity of compressing 300 gallons of oil per day. The mill also contained 20 tons of castor beans, and 2,500 gallons of oil ready for market.—Marysville Standard.

CALIFORNIA BUTTER IN NEW YORK.—A small arrival of California butter in New York, a short time ago produced quite a sensation among the Gothamites. The Tribune, in speaking of it, said:—"It was in two pound cylindrical rolls of fine grass color, waxy and high flavored, such as our State will produce one month from now. It has not been sold, but would readily command 50 cents per pound for its novelty, if not its real merits. Despite the disadvantages of climate, California is now making a quality of butter and cheese that will successfully compete with ours."



## New Publications.

**THE EYE IN HEALTH AND DISEASE;** a Series of Articles on the Anatomy and Physiology of the Human Eye, and its Surgical and Medical Treatment. By B. Joy Jeffries, A. M., M. D. Boston: Alexander Moore, Lee & Shepard. 1871. For Sale by A. Roman & Co., S. F.

With regard to the eye, there is but very little information possessed by the general public. Our sight is used with so little consciousness that we do not realize its importance and value till it is impaired or lost. Yet the care of the eye is all important, and with this the old proverb especially holds true, that an ounce of preventive is worth a pound of cure. We can therefore warmly recommend this publication, written by a medical man of high authority, to the public. To a very great number, the articles on old sight and spectacles, and on near-sightedness will prove especially valuable and applicable. The book is well written and fully illustrated.

**THE ILLUSTRATED HORSE MANAGEMENT,** containing descriptive remarks upon Anatomy, Medicine, Shoeing, Teething, Food, Vices, Stables; likewise a plain account of the Situation, Nature and Value of the various Points, together with comments on Grooms, Dealers, Breeders, and Trainers; also on Carriages and Harness. With over 400 engravings. By Edward Mayhew, M. R. C. V. S. Philadelphia: J. B. Lippincott & Co. For sale by Dewey & Co., S. F.

We have before spoken highly of the works of Mr. Mayhew (as his "Illustrated Horse Doctor"). This book forms a valuable addition to previous publications. The work is founded simply on common sense applied to the statements made and the facts known concerning the horse. It is written, moreover, in a manner easily comprehended by those styling themselves "practical" men; for its object is to reach those persons actually engaged about horses, and not for more theoretical reading. If the work runs counter to some notions entertained by many, it explains and proves its statements. As a teacher, therefore, it occupies a high position.

**THE ROADMASTER'S ASSISTANT AND SECTION-MASTER'S GUIDE;** a manual of Reference for all having to do with the Permanent Way of American Railroads, and containing the best results of experience and minute directions for Track-laying, Ballasting and Keeping the Track in Good Repair. By W. S. Huntington, Railroad Gazette Series. Chicago: A. N. Kellogg. 1871.

The object of this volume is to "correct, as far as possible, certain erroneous practices into which track-layers and section-men have fallen, which practices are fatal to the life of track and rolling stock." Those who have read the columns of our able cotemporary, the *Chicago Railroad Gazette*, will be familiar with the style of Mr. Huntington's writings, which have always struck us as of great value. So this volume, emanating from a wide experience on some of the best, and also some of the worst, managed roads in the country, contains very much of the greatest interest to those for whom it is written. We might call it a book of useful hints, were it not for the fact that "hints" hardly expresses the right worth of the practical facts mentioned. Our trackmen have to a great extent adhered to methods which, although good for the circumstances under which they were introduced, are wrong under new circumstances which have since arisen. The *why* and *wherefore* are shown here in a most convenient form, and the work is one to be recommended to practical men.

**A GENERAL TREATISE ON THE MANUFACTURE OF VINEGAR:** Theoretical and Practical, comprising the Chemical Principles Involved in the Preparation of Acetic Acid and its Derivatives, and the Practical Details of the Various Methods of Preparing Vinegar by the Slow and the Quick Processes, with Alcohol, Wine, Grain, Malt, Cider, Molasses, Beets, etc.; as well as the Fabrication of Pyroxylic Acid, Wood Vinegar, etc., etc.; together with their Applications, and a Treatise on Acetometry. By H. Dussane, sometime of the Laboratories of the French Government; author of "A General Treatise on the Manufacture of Soap," "A Complete Treatise on the Manufacture of Leather Dressing," etc., etc. With Illustrations and Philadelphia: Henry Carey Baird. London: Sampson Low, Son & Marston. 1871. 8vo. pp. 392. Price \$5. Sent free of postage to any part of the U. S.

The manufacture of vinegar has made most important progress of late years, and especially in this country during the late war, when manufacturers were obliged to have recourse to different materials (in part) from what were before used, and its production has, by the aid of science, been greatly cheapened. The above work, which is gotten up in excellent style, gives a full account of the progress of the industry and its present condition. Mr. Baird, in its preparation, has not hesitated to call to his assistance the best chemical talent of the country, and has turned out a work which, besides its own great intrinsic value, is highly creditable to the publisher.

**TIME AND ETERNITY.** A Poem. By George Mac-Henry. San Francisco: A. L. Bancroft & Co. 1871.

The typographical execution of this work is certainly most excellent. The printing and binding were all done at Bancroft's establishment, and we have never seen a finer specimen than this on our coast. The "poem" itself, however, is beyond us. So far as our limited perceptions go, it is principally a string of heavy words. Such verses as this, "Whence couriers ministrant succinct appear," meet us on every other page. Some people may like this sort of thing, but we are not up to it.

## Bull Run District, Nevada.

## New Strikes.

**EDS. PRESS.**—Since I last wrote, several new strikes have been made here. One was made by the McShane Co., and in this way: While running a tunnel to cut their ledge, they struck a body of decomposed red quartz. This was thrown aside on the dump as waste, until, some time after, they took a notion to have it assayed. The result was \$119 gold and \$57.50 silver per ton. After this test had been made, Mr. Smith discovered a ledge of similar character which, I hear, is much richer in gold; and others have since been found. As our district contains many different kinds of rocks, and numerous minerals, the miner here should always have tests made of any rock with which he is unacquainted, as several very valuable ledges have been discovered in this way.

## Mining Developments.

Our principal mines are all looking well, and every foot of depth shows improvement. The Ontario is sinking a shaft on the ledge and is in fine ore. The Franklin is also sinking and has just struck a very rich deposit. The Revenue is taking out high grade rock from the vein which is 4 feet wide. The Johnson shows a rich body of ore for 700 feet at the surface and as far down as has been gone. A tunnel is to be run to cut the bottom of the incline. The Blue Jacket takes out 15 tons daily. They have a 20-foot breast of good rock. This mine alone could furnish a mill with 36 tons daily. The Monument is still running its tunnel. The Highland Queen and other smaller claims are being worked with good success, I believe.

There is not much going on at Pennsylvania Hill. Some two or three companies, however, are at work, one of which is the Galena which is showing some very good ore.

## Arastra—Mills.

I understand that Mr. Borrett is about to erect an arastra. He has two stamps which he will set up for crushing the rock, and then will build an oven for roasting, after which he will amalgamate in the arastra which will be driven by water power. He says that he can thus work from 1 to 1½ tons every 24 hours at a small expense. If miners here would take hold of some such thing, it might help them in developing their mines until mills are erected.

As to bringing mills here, the millmen appear to demand that we contract to furnish 5,000 tons of ore and pay \$40 to \$50 per ton for working. Such a contract we shall make with no one. Our district justifies the erection of mills and has long done so, but we will not pay exorbitant prices for them. There is not another district in the State with an equal amount of ore but what has from 2 to 10 mills.

## BULL RUN MINER.

Bull Run Diet., July 13.

## Thimble Skein Wagons.

**EDITORS PRESS.**—In the issue of the PRESS of July 29th, I saw an inquiry concerning thimble skeins and thimble skein wagons. With regard to the different make and the difference in the run of the thimble skein and the wrought-iron axle, my experience has been in axling heavy freight wagons, for the last twenty years, in favor of the large axle. It overcomes the resistance of obstructions easier than smaller axles. With regard to the difference in the construction of thimble skeins, the Soule's thimble I consider is far superior to any other. They are got up upon more truly scientific principles than any other in use. They are so constructed that the axle can be made on a straight line, on the button, and give a plumb spoke, which is very necessary. They are also made without a chamber in the box, which is a plan adopted by the most experienced axle makers in the United States.

SUBSCRIBER.

## GOOD HEALTH.

## Dangers of the New Narcotic—Choral.

There is danger that not a little harm may result from the free use of the new narcotic, or anesthetic chloral. That it has valuable medicinal properties, and it is an admirable sedative, there can be no doubt. But it is one of the most fascinating of narcotics, and the habitual use of it is said to be attended with more and greater evils than almost any other drug of common consumption. It is understood, says the Boston *Advertiser*, that the use of it has become alarmingly prevalent; and it may therefore be well to note a few of the consequences. Eminent physicians say that it aggravates rheumatism and skin diseases, and causes irritation of the mucous surfaces of the nose and throat. It causes a dimness of sight that is most inconvenient, to say the least. A Chicago clergyman lately told his experience with the drug to his physician. For a few nights it was taken for sleeplessness; its effects were very pleasant; then came on a peculiar dimness, or weakness of sight; he had to read with one eye at a time—for a minute or two with each. If one eye was used longer than a minute, the words and letters became blurred and indistinct. The eyes became congested, the lids swollen and partially paralyzed. The tongue had a peculiar appearance; a black streak, like that caused by ink, extended the whole length of the tongue, in its center. The physician who sends this account to the *Chicago Tribune*, says that this peculiar appearance of the tongue is diagnostic. He had observed it in those who have been addicted to chloral eating for only a few days. The habit is, moreover, exceedingly hard to break off, and attempts to do so have resulted in symptoms not unlike those of delirium tremens. One case is reported where a man who took an overdose slept for twenty-four hours, and on awakening found his arms and legs paralyzed. It is to be hoped that these facts will induce the public generally to be very cautious about the new drug, and not to make use of it at all without the advice of a good physician.

## Living too Fast.

The deadliest foe to a man's longevity is unnatural and unreasonable excitement. Every man is born with a certain stock of vitality, which cannot be increased, but may be husbanded or expended rapidly, as he deems best. Within certain limits he has his choice to live fast or slow, to live abstemiously or intensely, to draw his little amount of life over a large space, or condense it into a narrow one; but when his stock is exhausted he has no more. He who lives abstemiously, who avoids all stimulants, takes light exercise, never overtasks himself, indulges no exhausting passions, feeds his mind and heart on no exciting material, has no debilitating pleasures, lets nothing ruffle his temper, keeps his accounts with God and man duly squared up, is sure, barring accidents, to spin out his life to the longest limit which it is possible to attain; while he who lives intensely, who feeds on high-seasoned food, whether material or mental, fatigues his body or brain by hard labor, exposes himself to inflammatory diseases, seeks continual excitement, gives loose reign to his passions, frets at every trouble and enjoys little repose, is burning the candle at both ends, and is sure to shorten his days.—*Ec.*

## Picking the Ears.

Dr. Hall says "picking the ear" is a most mischievous practice. In attempting to do this with hard substances, an unlucky motion has many a time pierced the drum; nothing sharper or harder than the end of the little finger, with the nail pared, ought ever to be introduced into the ear, unless by a physician. Persons are often seen endeavoring to remove the "wax" of the ear with the head of a pin; this ought never to be done; first, because it not only endangers the rupture of the ear by being pushed too far in, but if not so far, it may grate against the drum, excite inflammation, and an ulcer which will finally eat all the parts away, especially if of a scrofulous constitution; second, hard substances have often slipped in and caused the necessity of painful operations to fish or cut out; third, the wax is manufactured by nature to guard the entrance from dust, insects, and unmodified cold air, and when it has subserved its purpose, becomes dry, scaly, light, and in this condition is easily pushed outside by new formation of wax within.

Occasionally wax may harden and may interfere with the hearing; but when this is the case, it is the part of wisdom to consult a physician and let him decide what is the remedy; if one cannot be had, the only safe plan is to let fall into the ear three or four drops of tepid water, night and morning; the saliva is better still, for it is softer and more penetrating, but glycerine is far preferable to either; it is one of the blandest fluids in nature, and very rapidly penetrates the hardened wax, cools the parts, and restores them to a healthful condition. If in a week there is not a decided improvement in the hearing, medical advice ought to be had at once, as next to the eye, the ear is the most delicate organ of the body.

## How to Grow Lean.

Fat people will be interested to know that Dr. David, of Paris, a "professional emaciator," prescribes a treatment which is intended to diminish *embonpoint* without injuring the health. He directs the patient to live principally on meat, eating little else, and drinking as little as possible. Vegetables, soups, puddings, tarts, fruits, bread, cakes in their protean forms, have carbon and oxygen for their principal bases, and water is the protoxide of hydrogen; all of which substances are the elements of fat. The principal base of meat is azote or nitrogen, which does not enter into the composition of fat, hence lean meat is a good diet for the aspirant after leanness. Carnivorous animals are never corpulent, and pigs are fattened by meal, vegetables and milk, rather than with meat. The smallest possible quantity of liquid is an indispensable condition. It is said that a harrier who was at first so fat that he could not walk or lie down, was enabled to lose forty pounds in three months, and to diminish his abdominal girth by forty centimetres. The treatment prescribed for him was a beefsteak or cutlet, a cup of coffee and a very small quantity of vegetables; for dinner, plenty of meat, and little else; and a bottle or a bottle and a half of liquid per day.

**CHILDREN.**—When a child is hurt, never hush it. It is inexcusable barbarity; it is repressing his instinct, and for this reason if physical punishment is inflicted on a child it is perfect brutality. Cases are on record where children have been thrown into convulsions in their efforts to silence. A thousand times better is it to soothe by kindly words and acts, divert the mind by telling stories, by explaining pictures or by providing it with new toys. We have many a time in our professional experience as to sick children, found more benefit to be derived from a beautiful or interesting toy than from a dose of physic. The greatest humanity a mother can exhibit in respect to her sick child is to divert it, *divert it*, *divert it*, in all pleasing ways possible, as we ourselves who are larger children, feel sometimes really sick, when a cheerful face and much-loved friend has come in and before we know it we have forgotten what was the matter with us.—*Hall's Jour. of Health.*

**THE POISONOUS QUALITY IN RED FLANNEL.**—After a series of careful physiological and chemical experiments, by Dr. P. De Marmon, of Kingsbridge, N. Y., communicated by him to the *Medical World*, it was very definitely determined that the cause of poisoning by some red flannel was not in the coralline or aniline dyes, as generally supposed; but in a tin mordant used to fix the color upon the goods. The symptoms produced in the case to which his attention was called, were an eruption, with severe itching accompanied with vertigo. The woman who washed the garment had her arms up to the elbow covered with a red, burning eruption, similar in appearance and feeling to scarlet fever.

**EUCALYPTUS CIGARS** are being employed by French physicians for diseases of the larynx. It is also proposed that they be employed instead of tobacco by persons to whom that narcotic is particularly injurious. They are made from the leaves, which contains a kind of camphor, peculiar to that tree, and which constitutes their peculiar medicinal value. It is said they have been used with success in cases of asthma. Two or three leaves burned in a room produce an odor which is very soothing to the patient.



# Scientific Press.

W. B. EWER..... SENIOR EDITOR.

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## San Francisco:

Saturday Morning, Aug. 5, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, August 2, 1871.—Legal Tenders buying, 89½; selling, 90. Gold in New York to-day 112½.

## Table of Contents.

Ericsson's Solar Calorimeter, Ill.....	65
MECHANICAL PROGRESS.—Siemen's Resistance Pyrometer; Piano-Mécanique; Simple Lock-Nut; Increase of Narrow Gauge Railroads; White's Rolling Mill; Rhigi Railway.....	66
SCIENTIFIC PROGRESS.—Geology of the Great Basin; Waterproof Fabrics; Coloring Metals; Heating by Water; Spectrum of Corona; Atomic Weights of Cobalt and Nickel.....	66
Trip to Colorado, Ill.; San Diego Mines; Handsome Acknowledgment.....	67
MINING SUMMARY.—Mining Shareholders' Directory; Mining Stocks; Market Rates, 68, 69	
List of Patents; Railroad Matters; Mammoth Trees of Cal., Ill.; Great Orchard.....	70
New Publications; Bull Run District, Nev.; Thimble Skein Wagons; Chloral Hydrate; Living Too Fast, etc.....	71
Commission to Japan; Boiler Explosion; Mechanics' Fair; Geological Survey of 40th Parallel; Water Pipes.....	72
English Patent Law Reform; Safety Catch for Mining Cages, Ill.; Patent Nose Feed Bucket, Ill.; Improved Friction Clutch, Ill.; Laying Fumes of Giant Powder.....	73
Hemlock a Rat-Proof Wood; Tomatoes; Making Cheese; Measure for Shoes, Ill.; Mechanical Hints; etc.....	74

## A New Water Meter.

We are informed that a new water meter and engine is soon to be introduced on this coast. There is a very great chance for an improved device of the kind, and we are assured by persons conversant with the subject that this apparatus is an improvement on former designs. It can be used as a water meter, and also as power for running sewing machines, as well as for heavier work.

We have not yet seen the machine, nor have we received a full description of it. We have only heard the above statements from well-informed people. But the matter is worth looking at, and we shall investigate it further. Messrs. Macondray & Co., 206 Sansome street, will soon be able to give definite information.

## CHERRIES—WONDERFUL PRODUCTION.

We have received through Chas. F. Wilkinson, Esq. of the Deaf and Dumb Institute of Oakland, a remarkable display of cherries, grown in the nursery of Mr. Seth Luelling on the Willamette river, near Milwaukie, Oregon. This display consisted of 354 cherries, of the Royal Ann variety, grown on a single stem of seven-eighths of an inch diameter and five feet long; the whole weighing seven pounds.

We have had this remarkable product photographed, and shall have it engraved for illustration in the Press. After a short exhibition of the stem entire at Steele's drug store on Montgomery st., in order to preserve so remarkable a specimen as well as possible, it has been cut into short lengths and preserved in alcohol, in which condition it will be exhibited at the coming Fair of the Mechanics' Institute.

MAP OF UTAH MINES.—Our correspondent, W. H. M., now in Utah, has had a map of some of the principal mining camps drawn by a gentleman of high standing there; and this will be published by us with his communications from that place.

## The Commission to Japan.

We received last Saturday a call from Gen. Horace Capron, formerly U. S. Commissioner of Agriculture, and now at the head of the Commission appointed by the Japanese Government to investigate the resources of the empire.

The Commission will pay attention to the developing of the various branches of industry, agriculture, mining and manufacturing. The introduction of railways will also be an important part of their work. In the beginning, the principal work will be the introduction of improved methods of agriculture, and examination of the great mineral wealth of the country and of routes for railways.

Gen. Capron brings to the task many excellent qualities. His position as Commissioner of Agriculture has shown him to be not only of good scientific calibre, but also prominent as a financial manager. During the four years in which he has held this place, he has not only cleared off the debt of some \$60,000 which the department had previously incurred, but has also brought up the standard to a high level, has introduced and carried out many important projects, has added greatly to the scope and usefulness of the department, and now leaves it with the present appropriation of the year intact. A better record than this, no one could desire. Again, the General's wide experience as a large manufacturer and also as a prominent public man, has given him a knowledge of men, and a degree of tact invaluable in such a work.

Gen. Capron is aided by an efficient staff. Prof. Thomas Antisell, formerly of the University of Michigan, is a chemist of the first order, and well qualified as a mineralogist and geologist. Maj. A. G. Warfield, Jr., of Baltimore, Md., is commended highly as a railroad engineer, and especially as a good locator of roads. The Secretary of the Commission, Dr. Stuart Eldridge, of Washington, is also well spoken of for his literary and scientific attainments.

The General has a grave task before him, and one which will present many obstacles. He recognizes the fact and makes no parade of what he is to accomplish. We are all interested in his success, as a matter of national pride. We give him all our best wishes, and the hope that success may crown his efforts.

## Fine Art in San Francisco.

The very pleasant Art Gallery of Messrs. Snow and Roos was opened to the press on Friday of last week, and then to the general public. It has been nicely refitted and now contains in all about a hundred and fifty or sixty paintings.

The chief attraction of the Gallery is, of course, Bierstadt's "Emerald Pool," a scene in the White mountains. This is most exquisitely painted, and has called out the strongest encomiums from the papers. A number of local artists are represented in the collection, and a large piece of fine mosaic work attracts considerable attention. The gallery is open day and evening.

TERRIBLE BOILER EXPLOSION.—Telegrams from New York inform us that a Staten Island ferry boat exploded her boiler, on July 30th, when 200 people were on board. The result was 57 persons killed and 120 wounded, besides damage to the vessel to the amount of some \$12,000. The evidence given points to gross negligence on the part of those whose duty it is to examine and care for the boilers. A rigid examination is promised. If the fault can be traced directly to any one, he should suffer the extreme penalties of the law. Hanging is unfortunately not legal, although none too severe a punishment for wholesale murder and mutilation. Later accounts gives the number killed as 72.

## Mechanics' Fair.

The Fair at the Mechanics' Institute, which will open August 8th, promises to far outshine any previous effort. The list of articles to be exhibited is already extended far beyond what it has been at any previous fair. They are divided into thirty-six different classes, as follows:

- Class 1—Raw materials.
- Class 2—Vegetables.
- Class 3—Stuffed Animals, etc.
- Class 4—Steam Boilers, generators and appurtenances.
- Class 5—Steam Engines and appurtenances of all kinds.
- Class 6—Machines for transmission of power, etc.
- Class 7—Machinery and appliances employed in manufacturing and producing.
- Class 8—Metal-working, etc.
- Class 9—Wood-working.
- Class 10—Agricultural implements.
- Class 11—Machinery of various manufactures.
- Class 12—Philosophical, dental and surgical machines, etc.
- Class 13—Manufactures in metals.
- Class 14—Manufactures in wood.
- Class 15—Manufactures in glass, etc.
- Class 16—Manufactures in leather, rubber, etc.
- Class 17—Manufactures of wool, cotton and silk.
- Class 18—Manufactures from fibres and pulp.
- Class 19—Various manufactures.
- Class 20—Engineering and architecture.
- Class 21—Military engineering and architecture.
- Class 22—Civil engineering and architecture.
- Class 23—Will include paintings in oil and water-colors, chromos, crayons and pencil drawing, as distinguished from architectural drawing. A large number of works of art have been entered.
- Class 24—Sculptures, etc.
- Class 25—Various.
- Class 26—Lithographs, photographs, etc.
- Class 27—Wax-work and other light articles of taste.
- Class 28—Specimens of printing, etc.
- Class 29—Stationery, etc.
- Class 30—Sign-painting, lettering, ornamentation, etc.
- Class 31—Musical instruments.
- Class 32—Millinery, dressmaking, etc.
- Class 33—Chemical processes and products.
- Class 34—Processes and products of domestic economy.
- Class 35—Fermented cereals and vinous products.
- Class 36—Chemical and pharmaceutical products.

## The Silk Factory in Operation.

The California Silk Manufactory, at South San Francisco, is now in the full tide of successful experiments. As soon as the machinery now on hand is adjusted about 50 hands will be employed; which number will be increased to about 100 as soon as the mill is filled with machinery to its fullest capacity. The superintendent is a gentleman who has had large experience in Europe, where he has worked raw silk from China, Japan, France and Italy. He says the native California silk is fully equal to any he has ever worked.

The reeling department is one which will for the present excite the most interest and attention from the public, as it is a branch of the business which it is proposed shall be transferred from the factory to the homes of our silk growers, all over the State.

The true plan of silk raising contemplates the production of the raw silk (reeled) by the producer—it properly has no place in the factory. In this department at the factory may now be seen two young girls, the one a native of Italy, in which country she became skilled in the labor of "reeling," the other is Miss Amelia Thomas, of this city—the first native Californian who learned to reel silk. She acquired her proficiency while at work for Mr. Neuman, and reeled a large portion of the silk from which the presentation flags manufactured by him were made.

Many silk growers from various parts of the State have already visited the factory

to satisfy themselves of the reality of the enterprise, and to witness its operations. The managers will extend every facility for the training of reelers, who may wish to engage in that occupation in immediate connection with the production of the cocoons. The company prefer to buy their raw silk rather than reel it themselves at the factory. No weaving will be done at the factory at present; but it is expected that as the business expands, the manufacture of fabrics will become a feature of the enterprise.

## Geological Survey of the 40th Parallel.

The long expected work of the U. S. geological survey expedition, under charge of Clarence King, has at last been published. Treating, as it does, of the most important mining belt which could be selected in any such general way,—the belt along the 40th parallel, extending through Nevada, Utah and Colorado—it contains very much of the greatest interest to the mining community.

We would state here, as we have received a large number of enquiries as to the possibility of obtaining the work, that only two thousand copies have been struck off, while five thousand applications have already been received by the U. S. Engineering Department, under whose auspices the work has been accomplished. There is, therefore, no possibility of getting the volume, which is only a part, by the way, of the series, being Volume III, on Mining. It is not a Congressional publication. But Congress ought to authorize the publication of large number of copies, which can easily be done as the book is stereotyped. We therefore advise all wishing to obtain a copy, to write to their proper Congressional representatives, urging that copies be printed and distributed.

We had intended to speak more fully on this report, but we are obliged to defer it. Accompanying the work is a most valuable atlas, containing excellent sections of the Comstock lode, geological and topographical maps of the mining districts, etc. There can be no doubt but what this is the finest work of the kind ever published in this country,—probably its superior in any place is yet to appear. Bearing directly on the great interest of the West, its value is very great, and we hope that Congress will have another edition issued.

WATER AND GAS PIPE.—At 338 Montgomery street, room 4, may be seen specimens of pipe made by the Washington Water and Gas Pipe Co. The general features of the manufacture are that good Oregon wood is preserved and fashioned into pipe of any required size, in 8-foot sections, then banded with iron to ensure great strength, and then coated with asphaltum. Thus is made a strong pipe, which is perfectly free from injurious substances which render lead and other metallic pipes objectionable. Every piece is tested by a pressure 25 per cent. above what it will be required to sustain in actual use. There can be no doubt but what such pipe is excellent for many purposes. The main objection hitherto has been the price. We are assured that the pipe can be furnished very cheap. It has been, in use in different places during the past eleven years, and gives, it is asserted, great satisfaction. By the preservation process, great durability is secured.

PROF. W. P. BLAKE writes us from Utah that he will soon be in this city in all probability. Quite a number of gentlemen from California and Nevada, as well as from other places, are now examining the mineral resources of Utah,—Senators Nye and Stewart, Messrs. Head, T. W. Park, James Selover and others. Moreover, Commissioner Raymond has been there, but has left for Montana.

A STRANDED WHALE.—A whale has been washed ashore on the beach about half a mile beyond Fort Point. He is said to be 90 feet long, and is now being prospected for oil.



## English Patent Law Reform.

At a meeting of patent agents, in London, held on July 4th, to consider the proposed changes in the patent laws, the following resolutions were adopted:

*First*—That the chief defects of the patent laws have arisen from a want of appreciation of the natural rights of inventors to the sole use of their inventions, an unreserved recognition of which rights must pervade every equitable patent system, and the true aim of patent legislation is to harmonize these individual rights with the material interests of the State.

*Second*—That the grant of patents to negro "first importers" is an injustice to inventors, an injury to society as it induces the "pirating" of inventions; and the reason for these grants no longer existing, legislation should confine the issue of patents to actual inventors and their representatives.

*Third*—That, in view of the benefits inventors confer on the public, and the expenses incident to the completion and introduction of new inventions, a patent for fourteen years is an inadequate compensation, and we deem it expedient to grant patents for a term of twenty-one years without the privilege of extension.

*Fourth*—That the patent laws impose penalties upon inventors in the form of excessive fees, which justice and public policy demand should be reduced to the amount requisite to defray the expenses of an efficient administration of a simple patent system, and fees of ten pounds for the entire term—now one hundred and seventy-five pounds—would yield more than sufficient for the purpose.

*Fifth*—That the defects of the present practice should be remedied by the adoption of equitable "regulations," and the introduction of the system of granting patents, at the risk of the applicants, without any official supervision of the specification or preliminary investigation of the merits of the invention.

*Sixth*—That the rights of patentees should be determined by a competent tribunal, excluding all technical objections to the validity of the patent, and we deem it expedient to dispense with jurors and "scientific experts" in patent suits.

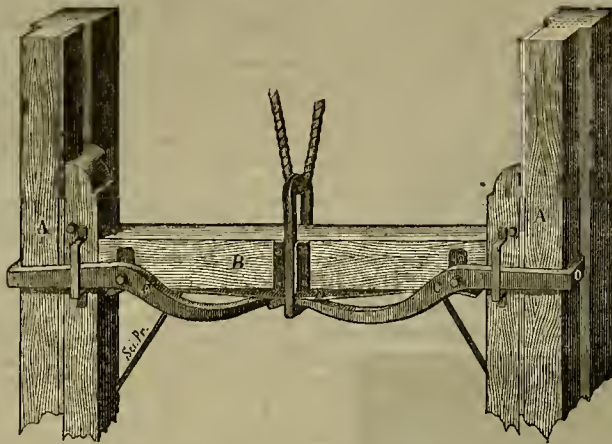
It was also ordered that the above resolutions be forwarded to the Parliamentary "Select Committee on Letters Patent," and it is to be hoped that favorable action will be secured on the propositions presented. The British Patent Law, as it now stands, is a terror to actual inventors outside of that country, and even refuses protection to home inventors, who delay making their application until after some patent sharp has slyly slipped in ahead of them. It offers every inducement and even favors the pirating of foreign inventions to such an extent that a citizen of any other country dare not issue or make public his invention without first securing his patent in Great Britain. This thing should not be. The law should protect and reward the genius who, through his own skill and labor, produces an invention of value to his fellow man. Without this protection, the progressive and inventive minds will refuse to work. The amount of fees also required to secure British protection is another hardship to inventors who, as a general rule, are not overburdened with money. This fact, in connection with the one above mentioned, gives the wealthy class a great advantage over the poor genius who has struggled with poverty in producing a valuable invention. We hope that the above or a similar reform will be instituted in Great Britain, so that the real and true inventor; and he only, shall be qualified to receive protection in the same manner as is provided for in the United States.

**LAKE TAHOE WATER CO.**—It is stated that the injunction suits against Col. Von Schmidt's work have been amicably arranged. The tunneling of the Sierra is soon to be commenced. Meantime work on the Alta Water Company's work, at the head of the American River, will be going on, and Col. Von Schmidt promises that from this source he will be prepared to furnish miners and others as low down as Iowa Hill with water within twelve months from date.

## Safety Catch for Mining Cages.

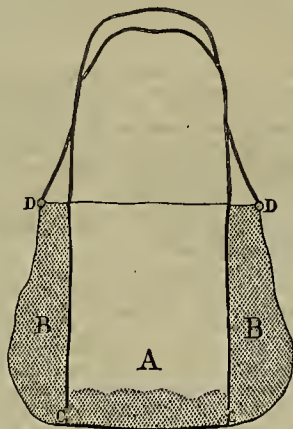
The necessity of having safety catches on cages in mines, especially when used for the ascent or descent of the workmen, has long been most ungently felt, so that, in some countries, it is required by law that some good device of the kind shall be used. Several instances have occurred of late at the Comstock mines which have shown the great value of safety cages, and these evidences can be reduplicated in almost any place where there are deep shafts.

Mr. Timothy Stebins, of this city, has devised a simple arrangement for a safety catch which will be readily understood from the accompanying illustration. Here *A, A*, are the guide timbers; *B* is the upper cross-bar of the frame of the cage; *C, C*



STEBINS' SAFETY CATCH FOR MINING CAGES.

are levers, bent at the upper ends, as shown at *O*. The inner ends of the levers pass one another a short distance so that the link to which the hoisting rope is attached acts at once on both levers. *D* is a stout flat spring which tends to throw the inner ends of the levers away from *B*, that is, to



PATENT NOSE FEED-BUCKET.

clamp the ends, *O*, firmly against the guide-timbers, *A*, so as to prevent the cage from moving. When the cage is being hoisted, or lowered, its weight prevents the spring, *D*, from acting on the levers; but if the rope breaks, the spring is released and causes the catches, *O*, to grip the guides with their upper edges and hold the cage. The device is very simple, and can be made and adapted to cages at a very small expense.

Patent Nose Feed-Bucket.

We were shown, in New York, by the inventor, Mr. W. A. Hough, of South Butler, Wayne Co., N. Y., what seemed to us a very desirable improvement in this class of article. The accompanying drawing, made from memory, serves to show its main principles. To the main bucket, *A*, are attached bags or pockets, *B, B*, into which is put the feed. At *C, C*, are left openings through which the feed finds its way into the main compartment, *A*, as fast

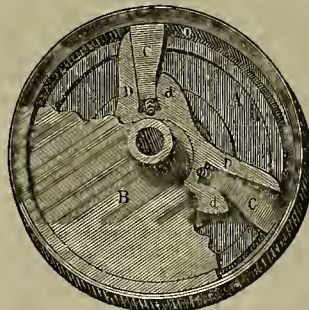
as the animal eats, and no faster, for as soon as the grain has filled *A* to a certain height, it acts as a gate and stops the supply entering through *C, C*, until the horse has lowered its level again. There is a wire stiffening as denoted by *D, D*. The article is cheaply constructed and will last a long time, as the animal does not thrash it about in order to get the food from the bottom, as is the case with ordinary feed-buckets. It is an advantage to the animal as well as to the owner of the article.

## Stebins' Improved Friction Clutch.

This invention is a new form of friction clutch, such as is used for hoisting pulleys and in other such cases where it is necessary that the pulley shall revolve freely in one direction, and lock itself when power

is applied to move it in the contrary direction.

In this form, there is a disk, *A*, provided with a rim as shown in the engraving, so as to form a hollow pulley. Through the center of this disk revolves a shaft to which is attached a hub with sets of arms, *D, d*, of the shapes denoted in the engraving. Between the two arms of a set is a bar, *C*, of the general shape shown, which is kept pressed gently against the rim of the pulley by means of springs. The arrangement is such that when the shaft revolves



STEBINS' FRICTION CLUTCH.

in one direction, the bars, *C*, rest against the arms, *D*, so that the outer edge of the bars is concentric with the rim of the pulley and consequently motion is unimpeded; but on reversing the motion, the small arms, *d*, thrust the bar out of its radial position, and the edge hinders against the rim so as to prevent motion. For the sake of illustration, the engraving shows one bar in the position it assumes to allow motion, and the other in a position to lock the pulley.

A patent for this invention has been granted, under date of June 7, 1870, through the SCIENTIFIC PRESS Patent Agency, to Mr. Timothy Stebins, San Francisco, Cal.

MR. W. H. WEBB, who has recently inaugurated the New Zealand and Australian steamship line on a sound basis, left San Francisco for New York, this week. Previous to his departure he received a most flattering address from the prominent merchants of this city.

## Laying Fumes of Giant Powder.

The following are the specification and claims for an improved method of laying fumes of giant powder, invented by Dr. Amrose Blatchly, of San Francisco, Cal., for which a patent has been granted through this office.

My invention relates to a process or method of laying or dispersing the deleterious fumes or gases which are evolved by Giant, Hercules powder and other explosive compounds which are composed of nitro-glycerine as a base.

It is a well known fact that where any of these explosive compounds are used in tunnels for blasting, and especially in the mines of California, the nitrous acid which is evolved by the explosive will linger in the atmosphere for a considerable time after the blast has been made, and the workmen are therefore compelled to inhale into the lungs air saturated with it.

The consequence of this inhalation of the fumes is that nausea, sickness and emaciation result to the workmen to such an extent that the use of these explosives in many tunnels has been discontinued from the fact that laborers refused to work where it was employed, thus compelling the disuse of the most economical and valuable blasting agents known.

In order to avoid this trouble and totally suppress these fumes, I employ a spray or jet of water immediately after each explosion, which I eject into the air in the immediate neighborhood of the blast, and which, on account of its great affinity for the gas evolved, will absorb it and precipitate it to the bottom of the tunnel with immediate results.

After this treatment, the workmen can immediately resume work without inconvenience, thus practically obviating all trouble in connection with the use of this class of explosives, and accomplishing a result which is of great value to the miners.

For delivering the spray of water into the mine, any suitable nozzle provided with a sprinkler will suffice.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

The above described method for laying or precipitating the gas or fumes evolved by explosives which are composed of nitro-glycerine as a base, substantially as specified.

## A New Sort of Incorporation.

There has been filed in the office of the Clerk of Alameda county a certificate of incorporation which reads rather queerly. The object is easily understood and is commendable, but the method of attaining it seems rather peculiar. The certificate is that of the Washington College Association; term of existence fifty years; object, to accumulate a fund to purchase real estate for a site, and to erect a college building and to organize and carry on a school to be known as the Washington College of Science and Industry, the same to be a fifth-class of the University of California and a chartered college of the State. Capital stock, \$30,000 divided into 600 shares. Principal place of business and location of the college, Washington, Alameda county. The trustees who are to manage the affairs of the corporation for the first three months are: E. L. Beard, W. F. B. Lynch, Albert Lyper, W. G. Homer, S. J. Marston, H. Croswell, G. Mowry, H. Curtner, and M. W. Dixon.

**FIRE IN FRESNO.**—The Fresno *Expositor* of July 20th, says: A damaging and disastrous fire has for several days past been raging in the mountains, between the Chowchilla and Fresno rivers. We are informed that it commenced on the Chowchilla river, near Chapman's ranch, and has burnt over a slope of country about nine miles in width clear to the Fresno river. Our informant tells us that parties were seen setting fire to the grass on the Chowchilla, but could not be recognized. The wildest cattle ran toward the men who were heating out the fire, seeming to seek protection, as they were driven out of the range. What amount of damage has been sustained, we did not learn. At last accounts the fire was still raging eastward toward the head of the Chowchilla river.



## DOMESTIC ECONOMY.

### Hemlock a Rat-Proof Wood.

If the following is reliable it should be more generally known. We find it copied into an exchange, without credit; so we are compelled to pass it along, if at all, in the same manner. It is well worth verification if possible. We copy as follows:

Being surrounded by rats, writes a correspondent, I found it necessary to keep fruits, butter, cheese, and other articles in boxes made of hemlock, not the *Covium* of the horologist, but the *Abies Canadensis* of the arborist. In these boxes I could keep the most toothsome delicacies in the cellar with impunity, even though the box afforded free ventilation, which, in many cases, is highly necessary. To test the matter still further, I made a box of dry hemlock boards perforating each end of the box with a 3/4-inch circular hole. Into this box I put a large healthy rat, caught in a hemispherical wire trap, nailed it up securely, put it in a dark quiet place, and awaited the result. On inspection at the end of 24 hours, I found he had scarcely more than touched the wood. I returned the box leaving the rat to his cogitations, which horn of the dilemma to choose. At the end of 48 hours I made him another visit. He had evidently come to the conclusion that remaining inactive was to strand upon Scylla, while the effort to huy his liberty could do no worse than wreck him upon Charybdis. He had enlarged the hole sufficiently to get his his head out, in which condition I found and dispatched him on the third morning of his incarceration.

### How to Cook Tomatoes.

The tomato is a vegetable that it is difficult to spoil, and it is generally acceptable even when rudely cooked. It is capable of so much change in the cooking as to afford a pleasing variety. One way of stewing tomatoes is to choose very ripe ones, skin and slice, rejecting any hard parts. Put in a pan with salt, butter and pepper, and very slightly cook, not more than ten minutes.

Another way is to stew tomatoes until thoroughly soft, rub them through a sieve and then cook them down to the desired thickness. Butter, salt and pepper, are the usual seasoning. Those fond of the flavor of onions will find the addition of chopped onions while cooking, to make an excellent variety. Baked tomatoes are fine; choose large fruit, and cut out a cavity at the stem end; fill this with a mixture of powdered crackers or bread crumbs, butter salt or other seasoning, set on a pan and bake until done. If managed carefully, the tomatoes retain their shape. Tomatoes may be broiled; cut them in halves cross wise and put them cut-side down upon the gridiron over the fire. When the cut surface is seared, turn them and put butter, salt, etc., on each, and cook with the skin side down until done.—*American Agriculturist*.

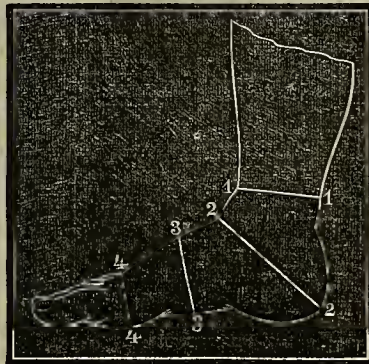
**AIR THE BEDDING.**—The desire of an energetic housekeeper to have her work completed at an early hour in the morning often causes her to leave one of the important items of neatness undone. The most effectual purifying of beds and bedclothes, cannot take place if a seasonable time is not allowed for the free circulation of pure air to remove all impurities which have collected during the hours of slumber. At least two or three hours should be allowed for the complete removal of atoms of insensible perspiration which are absorbed by the bed. Every day this airing should be done, and occasionally bedding, constantly used, should be carried into the open air, and when practical left exposed to the sun and wind for half a day.

**A NICE SUMMER DRINK.**—For the hot weather a delicious drink—soda cream—can be made in this wise: Two and a half ounces of tartaric acid, three pounds of white sugar, two quarts of water, white of three eggs, one teaspoonful of sassafras, lemon, vanilla, pineapple, or any flavoring essence one desires; put the acid, sugar and water together in a porcelain saucepan, and let it just come to a boil; add the whites of the eggs, beaten to a stiff froth; boil it just four minutes, stirring it every moment; strain; add the essences when cold; bottle tightly. When it is desired for use, turn two tablespoonfuls of it into half a tumbler of ice water, add to it one-third of a teaspoonful of soda, stir up and drink as soon as it foams. This makes a delicious drink, and is not expensive.

### A New Way of Making Cheese.

In conversation, recently, with an intelligent gentleman, one interested in all farm processes and practically familiar with many parts of farming, he related the manner of making, or rather pressing, cheese, practiced by a neighbor of his—a woman skilled in household economy and famous for her nice cheese. With the number of oows usually kept, it takes three days to make a cheese. Her former method was to run up a curd each morning, keeping them until the third day, then mixing old and new curds together, and putting them into the hoop and pressing. Her practice is now to run up the curd and put it into the press at once, the hoop being about one-third full. The next morning the second curd is run up, that which was in the hoop was taken out, the cloth changed, placed in the hoop again, the top of it then scratched or broken with a fork, and the second curd put in, when it is again placed in the press, where it remains all day. The third morning's curd is then run up, the cheese taken from the press, turned, the surface hacked up with a fork, and the third curd again sliced on, bringing the first curd in the middle of the cheese. It is then pressed sufficiently, taken out and placed in the curing-room. By this process the work each morning is cleared away, and a good sized cheese is produced of superior quality, and one as firm and solid as if all were placed in the hoop at once.—*Etc.*

It is often very convenient for a person on account of distance or sickness to have the measure of his or her foot taken by a friend and sent to the shoemakers instead



of going in person to be measured. By consulting the following diagram and directions this may readily be done:

**DIRECTIONS.**—First place the foot on a piece of paper and trace the outlines of the same with pencil, which will give the length and spread of the foot; then make the following measurements in inches, and fractions with tape. Measure as shown on diagram above:

1st, Ankle. 2d, Heel. 3d, Instep. 4th, Base, or Ball of the foot, or toes.

**Shoemaker's Measure.**—It may also be interesting with the above, to be made acquainted with the following facts in connection with the shoemaker's measure of sizes: No. 1 is 4 1/2 inches in length, and every additional number 1/4 of an inch more, but only for children's feet. For adults, No. 1 is 8 1/2 inches, and every additional number 1/4 of an inch more, so that No. 10 is 11 1/2 inches.

### A Russian Method of Preserving Fruit.

A method of preserving fruit, quite frequently adopted in Russia, consists in slacking fresh lime by sprinkling it with water and adding a little creosote. The fruit is to be packed in wooden boxes, with a layer of prepared chalk powder of an inch in depth at the bottom. This layer is to be first covered with a sheet of paper, and upon it the fruit is to be laid so as not to touch each other. On the first layer of fruit another sheet of paper is placed, with the lime-powder sprinkled over it, and a sheet of paper over this; upon this another layer of fruit is spread, as before, and the process continued until the box is full. The corners may then be filled with charcoal. If a tight cover is put on the box, the fruit, it is said, will maintain its sweetness for at least a year.

**BOILING ONIONS.**—A contemporary says, in boiling onions or cabbage, place a dish of vinegar on the stove at the same time. The fumes of the vinegar, which need not be made unpleasantly strong, will effectually destroy the odor of the vegetables.

### Domestic Receipts.

**To Cook EGG PLANT.**—Pare the fruit, cut it into slices a third of an inch thick, salt the pieces and stack them upon a plate. In an hour or two they will have parted with considerable water. They are then to be dipped in egg and sprinkled with cracker crumbs and fried. Serve very hot.

**To Cook VEGETABLE OYSTERS.**—A writer in an agricultural exchange says: "Our plan is, to wash them, scrape them, and slice them into cold water, so they will not turn black. When you are ready to cook them, put them into sufficient water to cover them; stew till soft, then add as much sweet milk as you like; season with salt and pepper; stir a tablespoonful of flour into as much butter as you need to season the dish; put it into the pan and let it boil up once, and it is ready to serve. Put in a slice of toast if you like."

**AN EXCELLENT AND ECONOMICAL PUDDING.** Pare and core half a dozen easily cooked apples, chop them into small bits; dry some bread in the oven—stale is the best—till it is crisp, then roll it into crumbs; butter a deep dish and place in it a layer of crumbs; then put in the apples, with a little sugar, and such spices as you like; cover the apples with another layer of crumbs, and so on, adding a little beef suet, chopped as finely as possible; pour in half a pint of milk; bake till nicely browned, and serve with hard sauce. Having many times made this pudding in our own family, we can speak advisedly of its excellence.—*German town Telegraph*.

**GRAHAM FLOUR MUFFINS.**—One pint of sour milk, a small teaspoonful of soda, one tablespoonful of sugar, Graham flour enough to make a thick batter. Bake in rings, or drop the batter in spoonfuls on a square tin. A little salt should be added to the batter before baking.

**BOILED CORN BREAD.**—Two cups of corn meal, one cup of wheat flour, half a cup of brown sugar, one pint of sour milk, one and a half teaspoons of soda, one teaspoon of salt; mix well. Put in a well-greased tin pail, cover tight and set in a kettle of boiling water; cover and boil two hours.

### Mechanical Hints.

**To STAIN IVORY OR BONE BLACK.**—Add to any quantity of nitrate of silver (lunar caustic), three times its bulk of water, and steep your ivory or bone in it; take it out again in about an hour, and expose it to the sunshine to dry, and it will be a perfect black.

**To STAIN IVORY OR BONE GREEN.**—Steep your work in a solution of verdigris and sal-ammoniac in weak aqua fortis, in the proportion of two parts of the former to one of the latter, being careful to use the precautions mentioned for staining red.

**To STAIN IVORY, ETC., BLUE.**—Stain your material green according to the previous process, and then dip them in a strong solution of pearl ash and water.

**To STAIN IVORY, ETC., YELLOW.**—Put your ivory in a strong solution of alum water, and keep the whole some time nearly boiling; then take them out and immerse them in a hot mixture of turmeric and water, either with or without the addition of French berries; let them simmer for about half an hour, and your ivory will be a beautiful yellow. Ivory or bone should dry very gradually, or it will split or crack.

**To SOFTEN IVORY.**—Slice a quarter of a pound of mandrake, and put in half a pint of the best vinegar, into which put your ivory; let it stand in a warm place for forty-eight hours, and you will then be able to bend the ivory to your mind.

**STAINS IN IVORY.**—There is no method of removing stains from ivory equal to hot lime wash; and on the finger-board of a piano, or organ, or harmonium, you can only do it with removing them. If ornamental work, be careful they do not split. The best way is to put them in hot water; then, when cold, place them in slack lime a little bit wet, and let them and the lime dry together slowly.

**WAX IMPRESSIONS.**—Saturate your plaster casts with boiled oil, dry thoroughly, and before putting in the mould damp the surface with olive oil, removing any excess with a bit of clean cotton wool. Do not raise the wax to a temperature much beyond the melting point, and pour steadily on one point, so that it will flow freely and evenly over the surface; these precautions will effectually prevent air bubbles on the surface you intend to deposit upon.

There are neither furniture manufacturers, nor manufacturers of musical instruments in the State of Texas.

## Life Thoughts.

GREATNESS of mind is always compassionate.

FEAR anticipates and magnifies future evils.

WISCONSIN is now the great iron producing State of the Union.

THE moment man gives way to inordinate desire, disquietude and torment take possession of his heart.

HEAVEN help the man who imagines he can dodge enemies by trying to please everybody.

A GOOD word is an easy obligation, but not to speak ill requires only silence, which costs us nothing.

TALENT, alone, is only the rough metal; it is diligent industry which works it, and ascertains its value.

MISFORTUNE, like a storm in traveling, gives zest for the sunshine, freshness to the prospect, and often introduces an agreeable companion for the remainder of the journey.

THE heart of a wise man should resemble a mirror, which reflects every object without being sullied by any.

VIRTUE has this happiness, that she can subsist of herself, and knows how to exist with admirers, partizans and protectors.

WHATEVER is done by those around you, be yourself fully determined to walk in the most excellent way.

EXPERIENCE teaches, it is true, but she never teaches in time. Each event brings its lesson, and the lesson is remembered; but the same event never occurs again.

### Influence of Example.

Men's lives are pages of history. Those who read are stimulated to good deeds thereby, or taught to avoid the mistakes such lives record. There cannot be too much said, or written, to encourage men of wealth to devote their leisure and money towards developing the beautiful in Nature, recovering and regenerating waste places, and affording men with less means and opportunities for the study of rural art. The influence of an example of good taste in the adornment of a single place in a neighborhood or town, reaches far into the future and molds more than most men think, the external features of that neighborhood or town, and affects more ultimately the lives of those whom it influences. If one man plants a tree his neighbor wants one. If one housewife has a flower parterre, another is not insensible to the enthusiasm with which the first exhibits and praises her floral pets. If one man sees his neighbor clearing out an old swamp, a ravine, or a rough place of any sort, and converting its rude angularities into symmetrical lines of beauty, he ever after looks upon the rough places of his own domain with the possibilities of what it may become in his mind's eye, and realizes, sooner or later, the ideal beauty which the realization of his neighbors have established.

SHUN EVIL SPEAKERS.—Deal tenderly with the absent; say nothing to inflict a wound on their reputation. They may be wrong and wicked, yet your knowledge of it does not oblige you to disclose their character, except to save others from injury. Then do it in a way that hespeaks a spirit of kindness to the absent offender. Be not hasty to credit evil reports. They are often the result of misunderstanding, or evil design, or they proceed from an exaggerated or partial disclosure of facts. Wait and learn the whole history before you decide; then believe what evidence compels you to, and no more. But, even then, take heed not to indulge the least unkindness, else you dissipate all the spirit of your prayer for them, and unreserve yourself for doing them good.

AMERICA has caught the glorious infection of free individual thought, which is going down to the bottom of all institutions, that it may see whether the foundations be well and justly laid: and woe unto the edifice that rests upon prejudice and bigotry.

EVERY man builds his own house—builds it many-chambered, fresh-ventilated, picture-hung, vine-wreathed, guest-full; or low-peut, bare-walled, flowerless, inhospitable—just in accordance with his inner nature.

It is the highest duty, privilege and pleasure, for great men to earn what they possess, to work their own way through life, to be the architects of their own fortunes.



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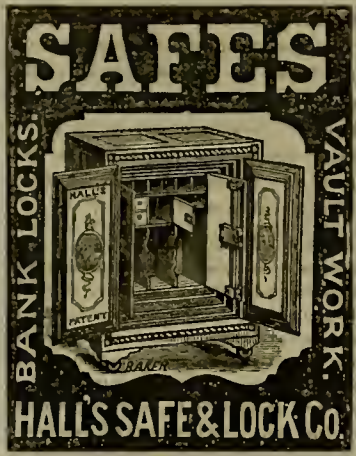
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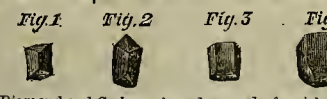
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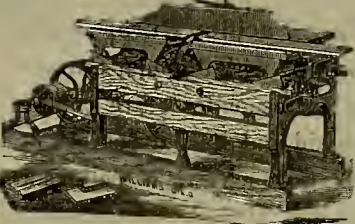
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jul29-4w **SINEER, DAVIS & CO., Indianapolis, Ind.**

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Pass'ger	Express	JULY 9,	Express	Pass'ger
Sunday	Train	1871.	Train	Sunday
except d	Daily.		Daily.	excepted
4.00 P.M.	8.00 A.M.	San Francisco	5.45 P.M.	12.30 P.M.
4.42 P.M.	8.40 A.M.	Oakland	5.12 P.M.	11.58 P.M.
3.50 P.M.	7.30 A.M.	San Jose	5.30 P.M.	12.15 P.M.
7.38 P.M.	12.21 P.M.	Stockton	1.28 P.M.	8.35 P.M.
9.35 P.M.	2.10 P.M.	Sacramento	11.45 A.M.	7.00 A.M.
	4.10 P.M.	Marysville	9.10 A.M.	
	7.50 P.M.	Sedona	5.40 A.M.	
		Sacramento	11.45 A.M.	
		Colfax	8.45 A.M.	
		Reno	1.09 A.M.	
		Winnemucca	4.05 P.M.	
		Battle Mountain	1.25 P.M.	
		Elko	8.45 A.M.	
		Ogden	5.20 P.M.	

**SAN JOSE BRANCH.**—LEAVE SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 3 P. M. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:30 p. m., daily  
(except Sundays).  
**OAKLAND BRANCH.**—LEAVE SAN FRANCISCO, 6:50,  
8:10, 9:10, 10:20 and 11:10 a. m. 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:20  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
**LEAVE BROOKLYN,** 5:15, 6:40, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.  
**LEAVE OAKLAND,** 5:25, 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.  
**ALAMEDA BRANCH.**—LEAVE SAN FRANCISCO, 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruit Vale only).  
**LEAVE HAYWARD,** 4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
**LEAVE FRUIT VALE,** 5:25, 7:35, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.  
\*Trains do not run Sundays.  
**T. H. GOODMAN, A. N. TOWNE,**  
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

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**WEST CORNER OF**  
**Market and New Montgomery Streets,**  
**AUGUST 5TH, 1871.**  
jul29-4w

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City.  
AT CHEYENNE with the DENVER PACIFIC R. R., with  
connection at Denver City with the Kansas Pacific R. R. to  
St. Louis and Southern and Atlantic Cities.  
AT OMAHA, for Chicago, Eastern and other cities, with  
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platform and elastic car-coupler; and the most approved  
construction of cars for the comfort and safety of passen-  
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From Chicago to New York. Three daily lines of  
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Harrisburg,  
Philadelphia  
and New York  
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**Boston and New England Passengers**  
will find this route especially desirable, as it gives them  
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Alleghany Mountains, besides visiting Pittsburgh, Phila-  
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tickets will be transferred, with their baggage, to Rail  
and Boat connections in New York WITHOUT CHARGE.  
Through Tickets via this great short route for sale in  
San Francisco, at 422 California street, 208 Montgomery  
st., 306 Montgomery st., and at Ticket office of Central  
Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne,  
Denver and Omaha. Be sure your tickets read via  
Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago  
route.  
**J. R. ERRINGER, Jr., Gen'l Agent,**  
4v22-1y **San Francisco, Cal.**



**EXTRAORDINARY GROWTH OF A ROSE SLIP.**—The Los Angeles *News* of June 22d, says: "One year ago Mrs. Bettis, at her residence on Main street, set out a rose slip about a foot long. It grew, divided in two branches, and is now trained over the window. If straightened out the vine would reach to the top of the two-story building at the foot of which it was planted, and the two branches united would measure over fifty feet in length. Flowers and trees have but to be planted and watered; soil and climate do the rest. The above, though but one instance of the rapid and wonderful growth often attained under the genial influence of our southern sky, will doubtless appear incredible to the dwellers in less favored regions."

**BOUQUET OF GLADIOLUS.**—We have received from Mr. J. W. Thompson, of the Suscol Orchards, Napa county, a magnificent bouquet of 22 new varieties of Gladiolas, imported from Boston, last spring. Fifty varieties were imported; but 22, only were in bloom when this bouquet was plucked.

**DR. WM. BARSTOW**, our able associate in editorial labors on the PRESS, has lately gone to his old home in N. H., to administer to the comforts of an aged father—a parent highly blessed with a son worthy and dutiful in all he undertakes.

#### Fair Samples.

During the Autumn Fair Season it is the purpose of the proprietors to bring the attention of every person engaged in the line of industries represented by this journal, to the personal benefit to be gained by its patronage and regular reading. We are not only determined to print a superior paper, but are bound that people shall know it, see it, and learn its power of self-elevation and practical benefit, by experience.

To accomplish this we have concluded to print (perhaps weekly) during the Fair season, many extra papers as fair sample copies of the PRESS for gratuitous and judicious circulation amongst the very best class of citizens—i. e., the steady, industrial, intelligent and producing population. By this liberal means our regular circulation will be greatly extended, and the different individuals who will receive and critically examine the paper and its entire contents will aggregate an immense number during the next three months.

#### Special to Inventors.

All inventors who secure valuable patents through the SCIENTIFIC PRESS PATENT AGENCY are specially favored with a liberal notice of the merits of their inventions in the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS—two first-class weeklies, the most widely circulated of any on this coast, reaching the very best classes for the benefit of our ingenious citizens. In many cases we know that such notices have been worth more to patentees than the whole cost of obtaining patents. While we give the most able and experienced counsel to inventors, our terms are more favorable to Pacific Coast inventors than those of any other Agency in the United States, besides the benefit derived from having their inventions set forth rightly in the start by gratuitous publication in more than one highly reputable journal.

#### TRADE MARK PATENTS

—FOR—

#### Merchants and Manufacturers

Can now be secured to advantage under the

#### NEW LAW

In the United States. Parties interested will be furnished with all information desired, and have their application intelligently prepared and promptly forwarded to the Patent Office, and their patents secured in good time, by DEWEY & CO., U. S. and Foreign Patent Agents, No. 414 Clay street, S. F.

Copies WANTED of the SCIENTIFIC PRESS of January 7, 1871. We will pay 25 cents per copy, at this office, and also feel obliged to the sender.

#### GOOD HINTS ABOUT ADVERTISING!

Be Careful of your Seed! Sow it in Good Ground!

If you have goods to sell to farmers, it will pay you better to advertise in a farming paper, read and preserved by 10,000 intelligent farmers, than in miscellaneous daily or weekly journals with 20,000 readers, comprising only 1,000 farmers. A mining journal in California with 10,000 readers reaches more miners than any other ten papers in the Union.

Purchasers are more likely to look for information in the advertising columns of a paper devoted to their special interests, than elsewhere, when ready to buy. Some will not read advertisements upon any other occasion.

Weekly journals are read most leisurely and carefully, and at a time when the subscriber is most favorably inclined to examine advertisements. The newspaper most specially representing your particular branch of industry is usually best entitled to your patronage, and the most profitable medium you can employ.

Advertisements appearing in a handsomely printed journal of established good character are more effective and beneficial to permanent dealers than when inserted in a shabby sheet of indifferent reputation.

Advertising in cheap priced mediums (of limited circulation) is like buying goods at retail when you could as well take them at wholesale.

Information imparted to a list of superior and intelligent and active and industrious readers (naturally looked up to by others for information), is seed sown in good soil for the advertiser.

Fame and fortune are gained, nine times in ten, by liberal and judicious advertising.

#### The Pacific Rural Press is meeting with Popular Success.

New correspondents are coming to its aid and its patrons are increasing from various sections at home and abroad. Testimonials of the great value of its timely and fresh information are daily received, and we now know that we can and shall publish and maintain a first-class agricultural journal of great profit to every reader and of essential benefit and importance to the community of the Pacific Coast. April, 1870.

The *Scientific Press*, of San Francisco, Cal., is now illustrating the beautiful scenery on the line of the Central and Union Pacific Railroads. This journal is of the same size and form as the *Scientific American*, and is one of the most valuable publications on the Pacific Coast. Published weekly by Dewey & Co., 414 Clay street. Terms, \$4 per annum.—*Iron World and Manufacturer*, Pittsburg, Pa.

We have been pleased to meet Wm. H. Murray, Esq., traveling agent of that most valuable mining journal, the *SCIENTIFIC PRESS*, of San Francisco.

He was here some four or five days, visiting our mines and mills, gathering items regarding our resources, and soliciting for the journal which he represents.

The PRESS, as a scientific and mining paper combined, is without an equal in America, and we are pleased to know that hereafter it will have a goodly number of readers in this mining camp.—*Colorado Miner*, Georgetown.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper or blank slip, WITHOUT the name and residence of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

READERS will favor advertisers by mentioning the information gained from notices in our paper.

Complete Volumes of the *Scientific Press* from January, 1864, can be had at this office at \$3 per volume. Bound in cloth, \$5. A limited number only on hand.

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to obtain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicago Mills, Bruges, Belgium. f623-ly

FOR THROAT DISEASES AND AFFECTIONS OF THE CHEST, "Brown's Bronchial Troches," or Cough Lozenges, are of great value. In Coughs, Irritation of the Throat caused by cold, or Unusual Exertion of the vocal organs, in speaking in public, or singing, they produce the most beneficial results. The Troches have proved their efficacy.

"I CAN'T SEE IT!" say many. But if you really wish to see with a good strong sight you should go to the store of C. MULLER, No. 205 Montgomery street, and look through his glasses.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

#### Premium for New Subscriptions.

There are many persons not familiar with the value of the PRESS who would ever after be thankful to our present subscribers for bringing their names on to our list of intelligent readers. Large additions can be made with little effort by the many in this way. We therefore offer (post paid) a premium of one of the patent newspaper file holders (advertised in this paper) for every two new subscriptions received with \$8 advanced payment.

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Subscribers for this journal can obtain our Patent Elastic Newspaper File Holder and Binder for \$1.50—containing full title of the paper on the cover. It preserves the papers completely and in such shape that they may be quickly fastened and retained in hook form at the end of the volume, and the binder (which is very durable) used continuously for subsequent volumes. Sent postage free. It can be used for Harper's Weekly and other papers of similar size. If not entirely pleased, purchasers may return them within 30 days. Just the thing for libraries and reading rooms, and all who wish to file the PRESS.

#### FOREIGN PATENTS

For Pacific States Inventors

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All of which points are imperatively requisite in Attorneys, for the interests of their Applicants for Patents in distant lands.

Our Associates and Correspondents are the Best Practitioners in every country where Patents are granted.

For Foreign Patents no model is required except in Canada. The Specifications and Drawings of the American Patent, if complete and perfect, will suffice for us to prepare the case. In Great Britain and other countries we apply for patents in the inventors' own names, thus avoiding their being published to the world in the name of a foreign agent, as is usual through other and less painstaking agencies.

Frequently several inventions, covered by different patents in the United States, on the same subject, can be skillfully combined in one patent in foreign countries when well understood by intelligent attorneys. As the privileges of our inventors are cut off in some countries, and curtailed in others, if not applied for soon after the issue of the U. S. patent, we advise inventors whose patents will be valuable in various populous civilized countries, to lose no time in applying for patents whenever they intend to obtain them for themselves or the benefit of others—with their own means or through the resources of those who are permitted to share the benefit. It must be remembered that the English (and some other important nations) invite the early introduction of inventions into their realms, by offering patents to the first introducer (which means the first applicant), without regard to the rights of the actual inventor, who has no after recourse.

For important inventions it is best to apply for foreign patents at the time of application for or before the issue of the U. S. patent.

We have the Foreign Patent Laws, Foreign Patent Reports, and other valuable and assisting documents, for easy reference in our Scientific Press Patent Agency Library—the most complete Patent Library on this side of the Continent.

Any further information regarding the time within which patents must be worked in any foreign country, time of payment and amount of annuities for patents in any of the above countries, will be cheerfully given on application.

Full particulars regarding any countries not named above, will also be given when desired.

DEWEY & CO.,  
Patent Agents.

Publishers of the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS, San Francisco.



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HOW TO CURE IT.

At the commencement of the Diarrhea, which always precedes an attack of the Cholera, take a teaspoonful of the Pain Killer in sugar and water (hot, if convenient), and then bathe the freely the stomach and bowels with the Pain Killer clear. Should the diarrhea or cramps continue, repeat the dose every ten or fifteen minutes until the patient is relieved. In extreme cases, two or more teaspoonfuls may be given at a dose.

The Pain Killer, as an internal remedy, has no equal. In cases of Cholera, Summer complaints, Dyspepsia, Dysentery, Asthma, it cures in one night, by taking it internally, and bathing with it freely. Its action is like magic, when externally applied to Old Sores, Burns, Scalds, and Sprains. For Sick Headache and Toothache, don't fail to try it. In short, it is a PAIN KILLER.

Directions accompany each bottle. The Pain Killer is sold by all dealers in Medicines. Prices, 25 cents, 50 cents and \$1 per bottle.

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The Changed Cross, size 22 by 28.  
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The Holy Family, size 22 by 28.  
The Beautiful Snow, size 16 by 22.  
Delhi, Delaware County, N. Y., size 20 by 28.

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CELEBRATED

#### Worcestershire Sauce.



Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, label, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauces and see name on wrapper, label, bottle and stopper. Wholesale and for export by the Proprietors, Worcester: Crosse and Blackwell, London, &c., &c., and by Grocers and Chemists universally. Agents, CROSS & CO., San Francisco. 1722-lyeow

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SOLID SILVER HUNTING WATCHES as low as \$15.  
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#### P Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRELS, RATS, CATYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction, and not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer, D. N. PHILPS, 31-15-awbp San Leandro, Alameda County, Cal.

#### BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, THAT BETTS'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament but that they are serviceable in protecting the wine from injury, and insuring its genuineness. MANUFACTURERS:—L. WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.



## Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

**Eagle Quicksilver Mining Company—Location of works, Santa Barbara County, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of June 1871, an assessment of Twenty dollars per share was levied upon the mines of said Company, payable immediately in gold coin of the United States, to the Secretary, at his office, Room No. 5, No. 302 Montgomery street, San Francisco, California.  
Any share upon which said assessment shall remain unpaid on Wednesday, the 9th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of August, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California.

**Highland Silver Mining Company—Location of works, Railroad District, Elko County, State of Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 13th day of July, 1871, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 428 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 21st day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 14th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.  
DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. July 15-td

**Mountain City Mining Company—Location of mine, Cope District, Elko county, State of Nevada.**  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 8th day of June, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Am't.  
Best, John T. .... 61 400 \$100 00  
Enright, John T. .... 63 250 62 50  
Greek, H. J. .... 42 100 25 00  
Hohron, W. M. O. .... 23 50 12 50  
Hohron, W. M. O. .... 24 10 2 50  
Hohron, W. M. O. .... 25 10 2 50  
Hohron, W. M. O. .... 26 10 2 50  
Head, Francis. .... 62 400 100 00  
Sharp, Wm H. .... 70 900 225 00  
Titus, H. W. .... 49 400 100 00  
Titus, H. W. .... 50 200 50 00  
Titus, H. W. .... 51 100 25 00  
Titus, H. W. .... 52 100 25 00  
And in accordance with law, and an order of the Board of Trustees, made on the 8th day of June, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on the 8th day of August, 1871, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
T. B. WINGARD, Secretary.  
Office, 206 Front street, San Francisco, Cal. July 22-2w  
Advertising charges, \$2 each certificate.

**Nevada Land and Mining Company—Location of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko County, State of Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of July, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 29th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 20th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California. July 25-5w

**North America Consolidated Mining Company—Location of works, White Pine Mining District, County of White Pine, State of Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 5th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 30th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Aug 5td

**Pinto Mining Company, Location of Works, Silverado, Pinto Mining District, White Pine County, Nevada:**  
NOTICE.—There are delinquent upon the following described stock, on account of assessment levied May 24th, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Am't.  
Leopold Jacobi. .... 1 60 \$ 7 50  
Leopold Jacobi. .... from 2 to 32 50 193 75  
A H Ward, Jr. .... 111 805 100 62  
Henry G Langley. .... 171 1610 201 25  
Robert E Johnson. .... 213 321 1/2 40 21  
Erasmus Olson. .... 212 10,000 1,250 00  
D B Arrowsmith. .... not issued 1,610 201 25  
And in accordance with law, and an order of the Board of Trustees, made on the 24th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on the 17th day of July, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
D. B. ARROWSMITH, Secretary.  
Office, 426 Montgomery street, San Francisco. 26v22-3t

**PINTO MINING COMPANY.**—The above sale is postponed until Wednesday, the 16th day of August, 1871, at the same time and place. By order of the Board of Trustees.  
D. B. ARROWSMITH, Secretary.

**Tecumseh Gold, Silver and Copper Mining Company—Location of Works, Gopher District, Calaveras county, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of July, 1871, an assessment of five dollars (\$5) per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, S. J. Hermann, at the office of the company, 516 Kearny street. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
S. J. HERMANN, Secretary.  
Office, 516 Kearny street, San Francisco. Aug 5td

## I. N. WILFONG'S

PATENT CIRCULATING

## STEAM BOILER.

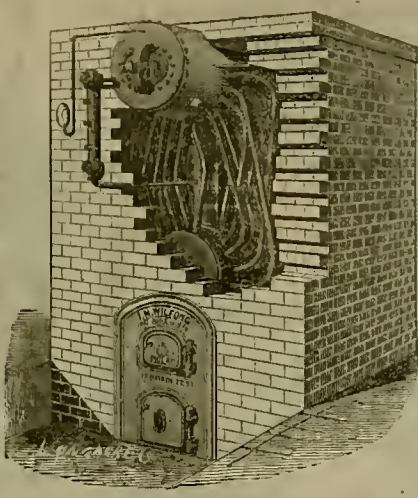
This cut represents an improvement on the old style of Cylinder Boiler, and combines all the following great advantages: Rapid circulation and generation of steam; economy in fuel; durability, safety, and simplicity of construction; requires but little attention; is easily repaired, and moderate at first cost.

We have now a number in successful operation, and respectfully refer to the following well known parties: Hastings & Co., Seventh and Cherry streets; Jos. Lea & Co., 128 Chestnut street; J. S. Huber, Germantown; Holt & Bro., Sixth and Susquehanna avenue; Albion Print Works, Conshohocken, Pa.; S. H. Diekey, Oxford, Pa.—all of which are giving ENTIRE SATISFACTION. Parties wishing to investigate the success of our new Boiler can do so by calling at any of the above named places, or to

## I. N. WILFONG,

131 and 135 North Twenty-second St.,

Manufacturer of all descriptions of Boilers (Rogers & Black's patent included), Tanks, Stills, Pans, and general Iron Work. Orders solicited from all parts of the country, and, when received, promptly attended to. State and County Rights and Royalties for sale as above. 5v23-6m-cow



## JOHN WRIGHT,

MANUFACTURER OF ALL KINDS OF

## MINERS' AND RAILROAD PICKS,

All Adze-Eyes, of Superior Quality.

13 AND 15 FREMONT STREET, AT NELSON & DOBLE'S, SAN FRANCISCO.

## List of Prices of Picks.

No. 1 Round Eye Surface, 4 lbs. .... \$1 00	No. 17 Drifting ..... 4 1/2 lbs. .... \$0 20
No. 2 " " " 4 1/2 lbs. .... 18	No. 18 " " " 4 1/2 lbs. .... 20
No. 3 " " " 5 lbs. .... 18	No. 19 " " " 5 lbs. .... 22
No. 4 " " " 5 lbs. .... 22	No. 20 " " " 5 lbs. .... 24
No. 5 " " " 6 lbs. .... 24	No. 21 Poll ..... 4 lbs. .... 20
No. 6 " " " 6 1/2 lbs. .... 24	No. 22 " " " 4 1/2 lbs. .... 20
No. 7 " " " 7 lbs. .... 24	No. 23 " " " 5 lbs. .... 22
No. 8 Flat Eye Surface, 4 lbs. .... 20	No. 24 " " " 5 1/2 lbs. .... 22
No. 9 " " " 4 1/2 lbs. .... 20	No. 25 " " " 6 lbs. .... 24
No. 10 " " " 5 lbs. .... 22	No. 26 " " " 6 1/2 lbs. .... 26
No. 11 " " " 5 1/2 lbs. .... 22	No. 27 " " " 7 lbs. .... 28
No. 12 " " " 6 lbs. .... 22	No. 28 Coal ..... 2 lbs. .... 12
No. 13 " " " 6 1/2 lbs. .... 24	No. 29 " " " 2 1/2 lbs. .... 12
No. 14 " " " 7 lbs. .... 24	No. 30 " " " 3 lbs. .... 14
No. 15 Drifting ..... 3 1/2 lbs. .... 18	No. 31 " " " 3 1/2 lbs. .... 14
No. 16 " " " 4 lbs. .... 18	

Also, Pick Eyes, Ready for the Steel, for Blacksmiths,

WHICH WILL BE SOLD CHEAP.

PRICES. FROM \$14 TO \$18.

## EASTMAN'S PENMAN'S ASSISTANT.

A New and Novel Invention!

This Eminent Practical Invention is producing a revolution in the Writing Art. It accomplishes immediately, when it is put on the hand, that which it takes months to reach by ordinary methods. We are offering inducements to Agents which are unsurpassed. For samples and Agents' circulars address, including 75 cents,

MOORE & WEINMANN,

General Agents for the Pacific Coast, P. O. Box 1915, San Francisco. Also, General Agents for Eastman's Celebrated STEEL PENS and COPY BOOKS. Aug 5 1thp

## OCCIDENTAL Insurance Company

OF SAN FRANCISCO.

ash Capital, . . . . . \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

## BELLIS' PATENT GOVERNOR.

EVERY USER OF STEAM POWER SHOULD HAVE IT. It is the CHEAPEST and BEST Regulator for Steam Engines known to mechanics.

We offer SPECIAL INDUCEMENTS to Engine Builders. Address for Circulars and Price List, SINKER, DAVIS & CO., Indianapolis, Ind. Aug 5-13w

E. J. FRASER, M. D.,

SURGEON,

No. 108 Stockton street, S. F., Cal.

**Taylor Mill and Mining Company—Location of works, Georgetown District, El Dorado County, State of California.**

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of July, 1871, an assessment of ten (10) cents per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 520 Montgomery street, San Francisco, Cal. Any stock upon which any assessment shall remain unpaid on the 16th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
SAM'L S. MURPHY, Secretary.  
Office, 82 1/2 Montgomery street, over Sather & Co's Bank, San Francisco, Cal. July 15-td

## Jeinsen Lubricator Company—Notice is

hereby given, that at a meeting of the Board of Trustees of said Company, held on the 1st day of August, 1871, an assessment of Fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 428 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 7th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
CALEB T. FAY, Secretary.  
Office, Room No. 7, No. 428 California street. Aug 5td

## 7-30 GOLD LOAN

OF THE

## Northern Pacific Railroad.

RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (begun July 1st) is being pushed forward with great energy from both extremities of the line. Several thousand men are employed in Minnesota and on the Pacific coast. The grade is nearly completed 266 miles westward from Lake Superior; trains are running over 180 miles of finished road, and track-laying is progressing at the rate of one to two miles per day. Including its purchase of the St. Paul & Pacific Road, the Northern Pacific Company now has 413 miles of completed road, and by September north this will be increased to at least 560. A GOOD INVESTMENT. We are now selling, and unhesitatingly recommend, as a profitable and perfectly safe investment, the First Mortgage Land Grant Gold Bonds of the Northern Pacific Railroad Company. They have 30 years to run, bear Seven and Three-tenths per cent. gold interest (more than 8 per cent. currency), and are secured by first and only mortgage on the ENTIRE ROAD and ITS EQUIPMENTS, and also on 23,000 ACRES OF LAND to every mile of track, or 500 Acres for each \$1,000 Bond. They are exempt from U. S. Tax; Principal and Interest are payable in Gold; Denominations: Coupons, \$100 to \$1,000; Registered, \$100 to \$10,000.

LANDS FOR BONDS. Northern Pacific 7-30's are at all times receivable at TEN PER CENT. ABOVE PAR, in exchange for the Company's Lands, at their lowest cash price. That is, in addition to their character as a first-class, prompt-paying Railroad security, these Bonds are in effect Land Warrants bearing a profitable rate of interest until exchanged for Homesteads, at TEN PER CENT. PREMIUM.

SINKING FUND. The Land Grant of the Road exceeds Fifty Million Acres, having an average soil of great fertility, in a climate that is simply unsurpassed. The Trustees of the Mortgage, Messrs. Jay Cooke and J. Edgar Thomson, are required to devote the proceeds of all Land Sales to the repurchase and cancellation of the Company's Bonds. This immense Sinking Fund will undoubtedly cancel the principal of the entire issue of First Mortgage Bonds (now selling) before they fall due. With their ample security and high rate of interest there is no investment accessible to the people, which is more profitable or safe.

EXCHANGING U. S. FIVE-TWENTIES. In view of the Government's expectation soon to call for the surrender of its outstanding 5 per cent. Bonds, under the present movement for funding the debt at lower interest, many holders of United States Five-Twenties are exchanging them for Northern Pacific Seven-Thirties, thus realizing a handsome profit, and greatly increasing their yearly income.

OTHER SECURITIES-AGENCIES. All marketable Stocks and Bonds will be received at their highest current price in exchange for Northern Pacific Seven-Thirties. EXPRESS CHARGES on Money or Bonds received, and on Seven-Thirties sent in return, will be paid by the Financial Agents. AGENTS for the sale of this loan are established in nearly every city and important town throughout the United States and Canada. Full information, maps, pamphlets, etc., can be obtained on application at any agency, or from the undersigned.

For Sale by

JAY COOKE & CO.,  
Philadelphia, New York and Washington,  
Financial Agents Northern Pacific Railroad Co.  
By Banks and Bankers generally throughout the country. mar25-13t-cow

## The California Powder Works

No. 314 CALIFORNIA STREET.

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others. We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use. A circular containing a full description of this Powder can be obtained on application to our Office. 16v20-3m JOHN F. LOHSE, Secretary.



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S OLEBRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.

## FULTON

## Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crasher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-q7

## MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry &amp; Machine Works,

235 TO 245 FIRST STREET,  
SAN FRANCISCO.

This Establishment is now working upon the CO-OPERATIVE PLAN,

And are thereby enabled to manufacture MACHINERY, CASTINGS &amp; BOILERS AT EASTERN PRICES.

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

## PACIFIC

## Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of RAILROAD AND OTHER IRON AND—  
Every Variety of Shafting,  
Embracing ALL SIZES, fSteamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames  
—ALSO—  
HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.  
The highest price paid for Scrap Iron. 9v143m

## THE RISDON

## Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.  
CAPITAL.....\$1,000,000.Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors: S. F. Butterworth, Lloyd Tevis, Wm. Alvord, Wm. Norris, Joseph Moore, Chas. E. McLane, John N. Risdon.

WM. H. TAYLOR.....President.  
JOSEPH MOORE.....Vice President and Superintendent.  
LEWIS R. MEAD.....Secretary.  
24v17-oy

J. O. CALDWELL, President. REESE LLEWELLYN, Superintendent.

## COLUMBIA

## Co-operative Foundry Company,

(INCORPORATED MARCH 16, 1871),

133 and 135 Beal Street, between Mission and Howard,  
SAN FRANCISCO.

Manufacturers of MACHINERY AND CASTINGS of every description.

Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

## NIAGARA STEAM PUMP WORKS.

FIRST PREMIUM

American Institute, 1867 and 1870.

CHARLES B. HARDICK,

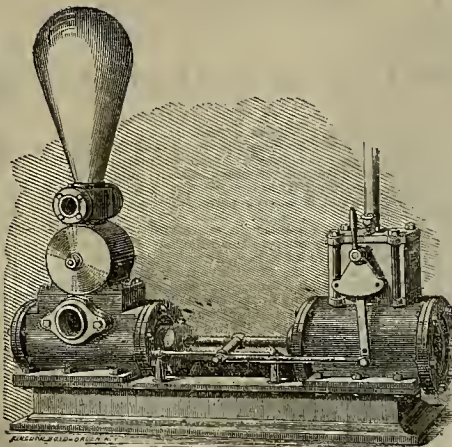
23 Adams Street, Brooklyn, N. Y.

SOLE MANUFACTURER

Hardick's Patent Double-Acting Steam Pump and Fire Engine.

PATENTED IN ENGLAND, BELGIUM AND FRANCE. SEND FOR CIRCULAR.

22v26t-cow



## VULCAN IRON WORKS,

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

ATKINS &amp; BURGESS,

MANUFACTURERS OF

STEAM SHOVEL OR LAND EXCAVATOR,

STEAM DREDGES, STEAM PILE DRIVERS, MILL

GEARING AND

GENERAL MACHINERY

CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to. 24v22-3m



## GEORGE T. PRACY, MACHINE WORKS,

109 and 111 Mission Street,  
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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,

Flour and Saw Mills, QUARTZ MACHINERY, Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR Pracy's Celebrated Governor. TURNING LATHES, Etc., constantly on hand. 4v23tf

## UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT &amp; NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS.

GROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Danbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,  
1 v1 SACRAMENTO CITY

## SEVERANCE HOLT &amp; CO.,

MANUFACTURERS OF

## Diamond-Pointed Drills

AND DRILLING MACHINERY,

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 15, No. 315 CALIFORNIA STREET, San Francisco. 25v20-3m

## THOMPSON BROTHERS,

## EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard  
San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

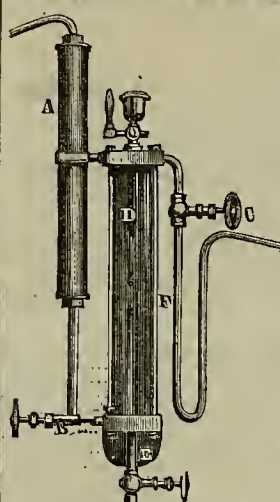
## JOS. THORNHILL,

## BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &amp;c., Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1012 Mason St., near Green, will be promptly attended to. 24v21-3m

## Machinery.

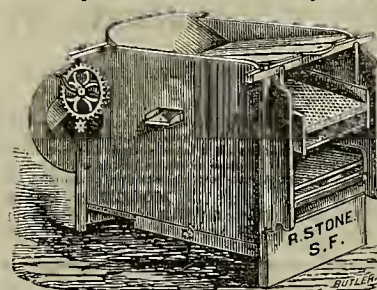
## GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION.—D is a glass chamber which contains the lubricant. O is a valve connecting with cup which introduces the lubricant into chamber D. F is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E is a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B is a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the injection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. fcl5-tf

## THE PATENT Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Panning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired. For further information apply to R. STONE, 25v22-3m 422 Battery street, San Francisco.

## McAFEE, SPIERS &amp; CO., BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco 2v21-tf

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

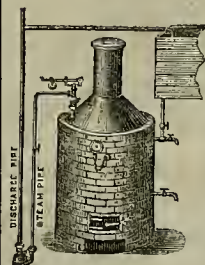
by the cry of "Humbag," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation. For further particulars address

FURMAN R. WILSON,  
San Francisco.

## STEAM JET PUMP.

Blakslee &amp; Williams' Patent.—For Water, Oils, Acids, Etc.



The best COLD WATER pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit.—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER &amp; HUNT, Southeast cor. Tenth &amp; K Streets, Sacramento City Cal. AGENTS—CHAS. F. BROCK, 117 California St., San Francisco; KEEP &amp; BARGON, Stockton. Can be seen at McAFEE, SPIERS &amp; Co's. Boiler Works, S. F. 21v21-tf

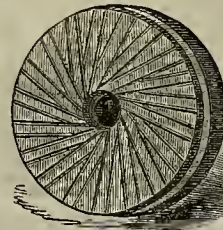
## TRAVIS &amp; WAGNER!

AGENTS FOR

Dufour &amp; Co's.,

Celebrated Dutch Anchor Brand Bolted Cloths; Smt Machines; 12 ft n Dusters; Mill Picks; Mill Stones dressed; Mill stones repaired and balanced.

MANUFACTURERS OF French Burr Mill Stones, Portable Mills of all sizes, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &amp;c. Mills specially adapted for Salting Quartz. 41 First st., San Francisco.



from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &amp;c. Mills specially adapted for Salting Quartz. 41 First st., San Francisco.

## POWER, TAITER &amp; CO.,

MANUFACTURERS OF



WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge), PHILADELPHIA.

Woodworth Planers a Specialty. 2v23-ly



# CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,  
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ALL KINDS of Brass, Composition Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. PRICES MODERATE. J. H. WEED, V. KINGWELL.

## Metallurgy and Ores.

### RODGERS, MEYER & CO., COMMISSION MERCHANTS.

ADVANCES MADE  
On all kinds of Ores, and particular attention  
PAID TO  
CONSIGNMENTS OF GOODS.  
4v16-3m

### Richardson & Co., Copper Ore Wharves, SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

### LOUIS FALKENAU, STATE ASSAYER, Analytical and Consulting Chemist, 421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.  
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

### LEOPOLD KUH, (Formerly of the U. S. Branch Mint, S. F.) Assayer and Metallurgical CHEMIST, No. 611 Commercial Street, (Opposite the U. S. Branch Mint.) SAN FRANCISCO, CAL. 7v21-3m

### NEVADA METALLURGICAL WORKS. 19 and 21 First st., in Golden State Foundry. RIOTTE & LUCKHARDT. Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ore and products. Returns guaranteed. Answers to all metallurgical questions given. 28v21-3m

### CALIFORNIA ASSAY OFFICE No. 512 CALIFORNIA STREET, One Door West of Montgomery.....SAN FRANCISCO. J. A. MARS, Assayer. Analysis of Ores, Mineral Waters, etc. 10v26 G. W. STRONG. W. L. STRONG

### C. W. STRONG & CO., Metallurgical Works, No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22ff

### PLATINUM Vessels, Apparatus, Sheet, Wire, Etc., Etc. For all Laboratory and Manufacturing Purposes H. M. RAYNOR, 25 Bond street, New York. Platinum Scrap and Ore purchased. 22v18t

### Varney's Patent Amalgamator.

These Machines Stand Unrivaled.  
For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repair. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.  
The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

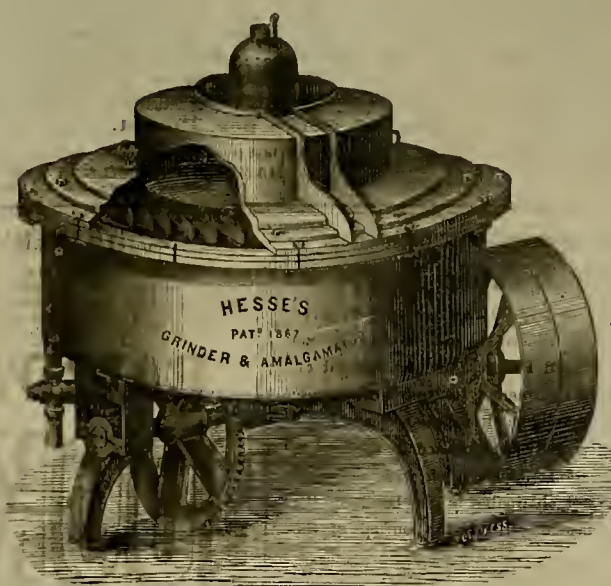
### The Stetefeldt Furnace.

For information of any description respecting this process,  
APPLY TO

### STETEFELDT FURNACE COMPANY.

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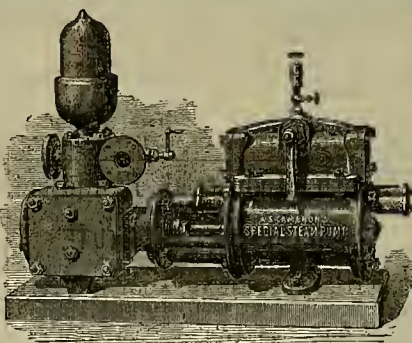
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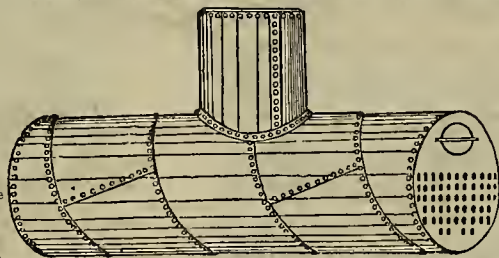
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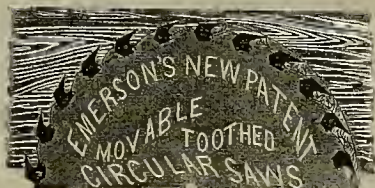
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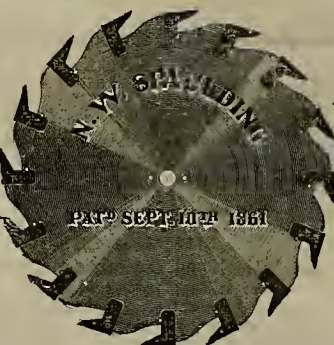
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BY DEWEY & CO., Patent Solicitors, SAN FRANCISCO, SATURDAY, AUGUST 12, 1871. VOLUME XXIII. Number 6.

## The Selden Direct-Action Steam Pump.

It is only within a comparatively short time that direct-action steam pumps have come to be regarded with any favor whatever by engineers. At first the very advantages of this kind of pumps were urged against them, as objections. Containing as they do the essential elements of a perfect pump, and having a marked superiority over the fly-wheel pumps, they have gradually taken the field and are driving all other kinds out of use. At the present time the fly-wheel pump is the exception and not the rule.

One of the chief difficulties met with by the makers of direct-action pumps has been in devising a perfectly reliable valve-motion, and the amount of labor and ingenuity expended in getting complicated valve gears, which answered every requirement except the desired one, is something enormous to think of.

It is now pretty generally admitted by our best hydraulic engineers that a pump cannot be trusted to move its own steam valve directly. The solution of the problem is to make the valves steam driven.

Mr. Wm. C. Selden, formerly of the U. S. Navy, is the inventor of the pump which we illustrate, and in it gives us such an answer to the question—"How shall we make the steam move the valve?" as to be worth a place in all treatises upon mechanics or hydraulics, because of its simplicity and the ease and perfection with which it does its work.

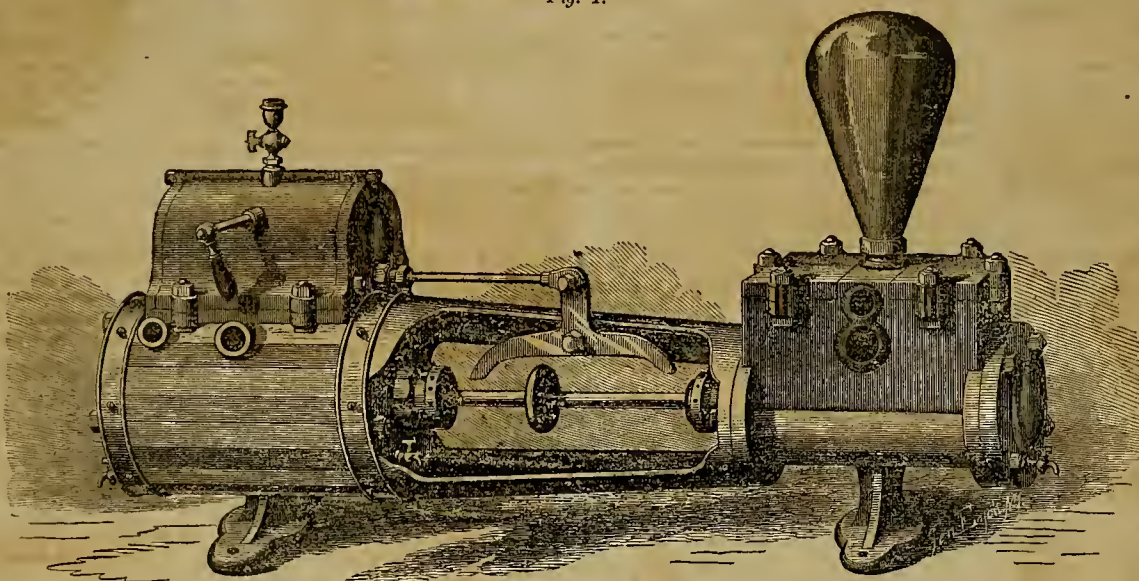
There are only five moving parts, consisting of tripping lever, valve rod, small valve, auxiliary piston, and main valve. The method of working and the operation of the parts may in a general way be stated thus: Near the end of the stroke, the button on the piston trips the lever and moves the small valve which lies in the slot in the main valve. By this motion steam is admitted upon one side of the auxiliary piston, and allowed to exhaust from the other. As this piston makes its stroke it works the main valve of the steam cylinder. The office of the main valve is

to admit steam to the auxiliary piston. The center ports unite below and form a common exhaust for both cylinders. The ports, *E, E*, are not covered by valves and are connected to the steam pipe to admit steam to the steam chest.

The main steam valve, *P, C, B*, Fig. 3, consists of two ordinary D valves joined

of the bridge, but are closed by the planed parts of the bridge at all other times. In Fig. 2 the small piston is represented as having just completed its stroke, and consequently its exhaust passage is entirely closed by the center portion of the bridge, *B*, resting upon the back of the valve, *A*.

Fig. 1.



THE SELDEN DIRECT-ACTION STEAM PUMP.

more. The reverse stroke is made in the same way;—the small valve moving first and opening the steam and exhaust ports for the auxiliary cylinder, the piston of this cylinder in its turn moving the main

valve by a bridge. The space between them is filled by the main valve. The bridge fits closely upon the back of this valve, and by means of the two small D-like spaces shown in the cut, performs the part of an

never seen equalled.

A. Carr, Esq., 43 Courtland street, New York city, is the sole proprietor and manufacturer of these pumps. Some of the chief advantages of these pumps are, the

valves used are slide valves of the ordinary D pattern, with which all engineers are familiar. When out of order they can be repaired or renewed by any ordinary mechanic. This will be seen by an examination of the cuts. The valves themselves are plain slides, and can be ground into place without difficulty, their whole work being performed by the ingenious arrange-

Fig 2

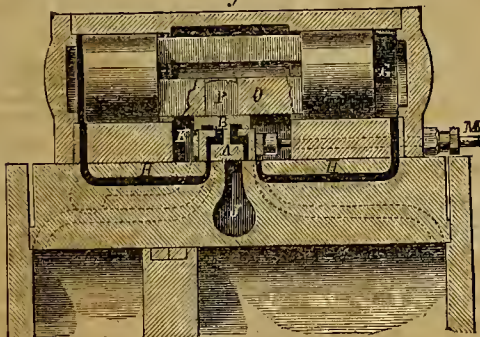
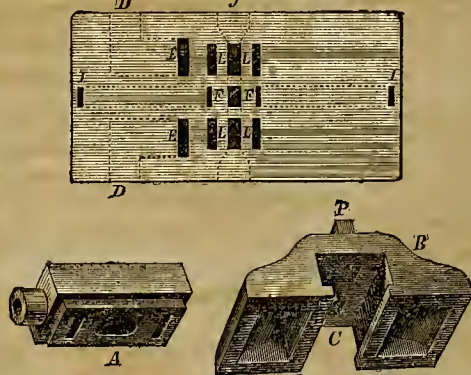


Fig. 3



valve and being cushioned by it as above described.

Figure 1 shows the external appearance of the pump. Figure 2 a section through the steam chest, and Fig. 3 a plan of the valve seats and perspective view of the valves.

The outer ports, *L, L, L, L*, Fig. 3, are the steam ports of the main cylinder, and are covered by the main valve, they unite below and form one port at the point where they enter the cylinder as in the ordinary steam engine.

The ports, *F, F*, are covered by the auxiliary valve and by means of the ports, *I, I*,

independent cut-off valve for the exhaust of the small cylinder; thus producing the desired cushion. The value of this cushioning can hardly be over estimated; for by limiting and regulating the travel of the small piston, it completely regulates the motion of the main valve, and through it prevents the possibility of any pounding in the main cylinder.

The small valve is a rectangular block of brass, planed on each face, and has three openings through it. These openings communicate with each other at the proper points of the stroke, by means of the hollows (mentioned above) in the under side

ment of the ports. This simplicity is a very decided advantage over piston valves as used in many other pumps, which can only be repaired by being rehored and new pistons fitted, which requires the service of most skilled workmen, or else the parts must be sent to the shop where built for repair. In fact, the pump as a whole has the advantage that there is no part of it that cannot be repaired or renewed in any ordinary machine shop.

EXPERIENCE in Eastern Oregon shows that sage brush land, when irrigated, always produces good crops of hay, grain, etc.



## SCIENTIFIC PROGRESS.

**WEATHERING OF COAL.**—Dr. Richters states that the property which coal has of taking up oxygen, when heated gently (as to 375° F.) is modified essentially by its percentage of disposable hydrogen. This first becomes oxidized, forming water; then the oxygen enters directly into combination with the coal. The carbon of stone coal possesses, at a temperature of about 372° F., a variable affinity to oxygen; as the smaller portion (5 to 6 per cent. of the total amount) combines with oxygen to form carbonic acid; the rest shows little or no affinity for oxygen. These two propositions apply equally well at the ordinary atmospheric temperature. The so-called weathering of coal he ascribes to the absorption of oxygen which in one case oxidizes a portion of the carbon and hydrogen of the coal, converting it into carbonic acid and water; in the other, enters directly into the composition of coal. If then the coal becomes heated in any way, a more or less energetic chemical action, varying in proportion to the elevation of the temperature, takes place upon the combustible substance of the coal; but on the other hand the process of oxidation proceeds so slowly that the changes occurring within the period of a year can scarcely be established with certainty, either technically or analytically. Moisture, as such, seems to have no accelerating influence upon the weathering of the coal, except in the case of coal containing a large amount of sulphuret of iron or pyrites. Pure coal, heaped up for nine months or a year, unprotected from the weather, and not allowed to become heated, is changed no more than it would have been in a perfectly dry locality. As long as an increase of temperature does not exceed certain bounds, as from 340° F. to 375°, there is no appreciable loss of weight by the weathering; and, in fact, there should be a slight increase in consequence of the absorption of oxygen. The decrease in value for combustible purposes, and for other technical applications, which coal experiences by the weathering, is produced by a slight decrease of carbon and hydrogen, and an absolute increase of oxygen in consequence of the exposure.—*U. S. M. & R. R. Reg.*

**NOVEL SUBSTITUTE FOR GUTTA PERCHA.**—A singular marine plant is washed up on the shores in the vicinity of the Cape of Good Hope, South Africa, which has come into considerable use as a substitute for gutta percha and similar substances, in the manufacture of fancy articles, such as canes, picture frames, inlaid work, etc. It is of a dark color, and, when fresh, it is thick and fleshy; but when it is dried it becomes compact, and its surface looks like a beautifully grained deer's horn. After it becomes dry and hard, it can be rendered soft again by steeping in water, and in this condition may be stretched and formed into various shapes. It can also be reduced, when dry, to powder, then made plastic by soaking in water, and in this condition it may be stuck into almost any shape in a die press—coming out of the mould like articles formed of gutta percha. The plant is prepared for its industrial uses by cleaning it first with weak caustic alkali, and then with diluted sulphuric acid, after which it is washed, and before it is quite dry it may be pressed into sheets or any other form. It then may be rendered very hard by steeping it in a hot solution of alum, after which it is removed to a hot room where it is dried, and retains its shape afterward. Reduced to powder, it may also be mixed with various substances, like india rubber, and moulded into a great variety of articles.—*Coll. Courant.*

**TRANSMISSION OF SOUND BY WOODEN RODS.**—An interesting modification of Wheatstone's celebrated experiment of the Telephonic Concert was recently tried at the Central High School of Philadelphia. A rod of English deal, about twenty feet in length, and three-quarters of an inch thick, was let down through a platform into the room below. Insulation from the platform and the ceiling of the lower room was obtained by inclosing the rod with small sections of thick rubber hose. Against the lower end of the rod the sounding-box of a small tuning-fork was placed. On speaking or singing into the open end of this, the sounds were transmitted by the rod to the room above, the volume of the sound being increased by placing a guitar on the upper end of the rod. The experiment is exceedingly interesting and striking. Although the inter-

val between the notes is perfectly preserved, their intensity and quality are changed very decidedly, the effect being similar to that produced by ventriloquism. As the position of the rod is immaterial, striking effects can be produced as though by ventriloquism. A small figure placed on the end of the rod or on the sounding-box adds greatly to the effect. A song is transmitted in a very amusing manner. As it is preferable to have the sounding-box held so that the pulses should impinge in the direction of the length of the rod, the experimenter in the room beneath rested, for convenience, on a settee. This mode of transmission of sound does not, of course, give as good results as by means of hollow tubes, as the transmitted sound cannot be heard at so great a distance. It is interesting, however, from its novelty. *Journal Franklin Institute.*

**ORIGIN OF SPECIES.**—Mr. John Fisk, in one of the University course of lectures, at Harvard College, gave a summarized outline of Darwin's theory, as follows:—"When analyzed, the theory of natural selections will be found to consist of eleven propositions, of which nine are demonstrated truths, the tenth is an inevitable corollary from its nine predecessors, and the eleventh is an admissible postulate. Let us enumerate these propositions: 1. More organisms perish than survive. 2. No two individuals are exactly alike. 3. Individual peculiarities are transmissible to offspring. 4. Individuals whose peculiarities bring them into closest adaptation with their environments are those which survive and transmit their peculiar organizations. 5. The survival of the fittest thus tends to maintain an equilibrium between organisms and their environments. 6. But the environment of every group of organisms is steadily though slowly changing. 7. Every group of organisms must accordingly change in average character under penalty of extinction. 8. Changes due to individual variation are complicated by the law of that change set up in any one part of a highly-complex and coherent aggregate, like an organism; initiates changes in other parts. 9. They are further complicated by the law that structures are nourished in proportion to their use. 10. From the foregoing nine propositions, each one of which is undisputedly true, it is an inevitable corollary that changes thus set up and complicated must eventually alter the specific character of any given group of organisms. 11. It is postulated that, since the first appearance of life upon the earth's surface, sufficient time has elapsed to have enabled such causes as the foregoing to produce all the specific heterogeneity now witnessed."

**DURABILITY OF IRON.**—The late J. A. Roebling maintained that a good material and finished by the proper heat, by hammering or rolling, is stiffer and stronger than the same axle when again subjected to annealing without hammering or rolling; for, as annealing restores softness, but at the same time reduces cohesion and elasticity, to restore the iron of a brittle car axle fully can only be done by a full beat, with hammering or rolling, which of course reduces its diameter. The opinion, too, that a well drawn out fibre is the only sure sign of tensile strength, is true only when applied to ordinary qualities of bar or rail iron, the case being different with good charcoal irons and with steel. The greatest cohesion is accompanied by a fine, close-grained, uniform appearance of texture, which, under a magnifying glass, exhibits fibre, the color being a silvery lustre, free from dark specks. The finer and more close-grained the texture, the nearer the iron approaches to steel. Wire cables, car axles, piston rods, and all such pieces of machinery which are exposed to great tension as well as torsion and vibration, should be manufactured of iron which not only possesses great cohesion, but also a high degree of hardness and elasticity.—*Iron Age.*

**PHOSPHATIC SAND IN SOUTH CAROLINA.**—Prof. Shepard has described a deposit of sand over the phosphatic nodular bed of Stone River, which has resulted from the wear of the latter by the waters, and in some places is at least six feet thick. A portion of it, dry, was found to contain 27 per cent. of phosphate of lime, with 63.5 of sand and other matters. By agitation in water the most of the sand may be floated off, and the phosphatic portion thus concentrated to 37 per cent. of the remainder. This sand deposit appears to be very extensive. The phosphate is too impure for railroad exportation, but "for use on lands contiguous to water its future value cannot be doubted."

## MECHANICAL PROGRESS.

**ELEMENTARY AERONAUTIC APPARATUS.**—M. Foselli, say *Les Mondes*, during the progress of the siege, has been very seriously studying the problem of navigable aeronautic apparatus. We shall not presume to say that he has solved the problem, but his attempt certainly presents some new and ingenious peculiarities. His *aerostat* is a simple cylinder terminated by a cone intended to cleave the air, and surmounted by cones called *compensateurs*, which, by means of a very simple apparatus, may be made salient or reentrant, so as to equilibrate all the variations in pressure of the gas; so that it is not necessary to throw out ballast, or to let off gas, in order to rise or descend. The cylinder index is firmly fixed to a metallic chamber or cylinder with inflexible walls, of the same length as the machine. The chamber carries at its extremities propellers or helices which are intended to drive and guide the vessel. It is divided into compartments, each having its special use. One is hermetically sealed and is to hold atmosphere to be breathed when at a very great height. M. Foselli does not think it possible to steer in the disturbed atmosphere of the region of snows; but intends to reach that great elevation in which there is absolute calm. He estimates that in the region of perpetual calms atmospheric tension is reduced to one-half of what it is at the surface of the earth. Hence it was necessary to assure himself by vigorous calculations that it would be possible at so great an elevation to introduce sufficient air into the living chamber to maintain an atmospheric pressure of 750 millim., which is necessary for the normal action of the essential organs of life. M. Foselli was much surprised at finding that the arm of a single man acting upon a single air-pump will maintain, at ordinary tension, an amount of air sufficient for the respiration of several hundred persons. In a very rarefied and calm atmosphere a very slight motive force, or a very small screw, is sufficient to make the machine move, even when loaded. \* \* \* M. Foselli has discovered an unexpected fact which may lead to the means of navigating against the wind, or force the wind itself to give the machine a motion different from its own. He had suspended his model and had fixed to it two screws of like form and dimension, but mounted so as to act in opposite directions. These were set in motion by the descent of a weight. Who would not have supposed that under the action of these two screws, opposite in direction, equal and of contrary signs, the apparatus would have remained at rest? Yet it moved with a velocity greater than that due to the action of a single screw.—*Van Nostrand.*

**PROTECTING TELEGRAPH LINES FROM LIGHTNING.**—Much trouble has always been experienced from lightning on a section of telegraph line between Riverside and the stockyards, on the Chicago, Burlington, and Quincy Railroad. Poles are frequently shivered to splinters and much other damage done during the heavy storms which occur there during the summer. About a year and a half ago, Mr. F. H. Tubbs, tried the experiment of attaching a lightning conductor to each pole of this section, consisting simply of a No. 7 iron wire, one end of which was secured underneath the iron ring at the top of the pole, and the other buried in the ground, the wire making one complete turn around the pole two or three feet below the top. This simple and inexpensive precaution has thus far prevented any damage whatever from lightning on the section protected, although this is the second summer it has been in use, while formerly not a summer passed without several poles being destroyed in this manner.—*The Telegrapher.*

**A MONSTER IRON OBSERVATORY** is being erected on the roof of the Equitable Life Insurance Company, on Broadway, New York. It will be 22 feet high, while the roof of the building is 130 feet above the sidewalk. It will be constructed of iron, cased with slate, and the interior dimensions will be 10x14 feet. The probabilities of the weather will be indicated by balls 12 feet in diameter, which will be displayed upon two signal-staffs to be seen and understood from various points on Long Island Sound, Sandy Hook, and the inland waters of the Hudson and Harlem rivers. These will indicate where storms exist, and with how much force they are traveling. In the Equitable building will be exposed a large map, displaying all the immense ter-

ritory throughout which the service has its stations, reaching from Mexico to Canada, and from the Atlantic to the Pacific coast. The state of the weather will be indicated by ingenious dials at each of these stations, from which reports will be received at the Equitable every five hours. A bulletin hung by the side of the map will give the record of at least five preceding observations. The observatory in this city will form a part of an elaborate and perfect system of meteorological observations along the coast and throughout the interior.—*Amer. Artisan.*

**NEW STEAM TRAP.**—Chatwood & Cramp-ton's self-acting escape valve for drawing off water from steam pipes, etc., consists of a short vertical pipe, open at the top, which should be at a lower level than the cylinder or other steam vessel to be drained. Around the upper part of the pipe is formed a valve face, the face being downwards. The upper part of the pipe, with the valve-face above mentioned, is enclosed within a small vessel closed at the top and hanging at its lower end a neck, which fits on a parallel part of the pipe below the valve-face, and carries a corresponding valve seating set with its face upwards so that, when the vessel is lifted up, the valve and seating are in close and steam-tight contact, and when the vessel drops, the seatings separate and allow any fluid contained in the vessel to escape through grooves left in the neck. The action of this apparatus is as follows: When steam only is in the pipes, the vessel is pressed upwards, owing to the interior area of the vessel being greater at the top than at the bottom by the amount of the area of the valve face, and thereby the valve and face are closed together so as to prevent the escape of steam. When water is formed in the pipe by the condensation of steam, it gradually accumulates in the vessel until it overcomes the upward pressure of the steam, and causes the vessel to drop, thereby opening the valve and escaping through the grooves mentioned. When sufficient water has thus escaped, the steam pressure again lifts the vessel and closes the valve. Above the mouth of the vertical pipe is a guard, against which, when the valve opens, the condensed fluids are driven by the pressure in the steam vessel, so that, by their downward reaction, they tend to keep the vessel down and the valve open until the vessel is empty, or nearly so. A weighted lever, or weights, or springs, are also applied to the closed vessel, so as to regulate it to suit the pressure of steam in the engine or other steam vessel to which the apparatus is applied.—*Engineering.*

**THE ST. CHARLES BRIDGE**, over the Missouri, is composed of seven spans, varying from 306 to 321½ feet in length, and 4,800 feet of iron viaduct approach. The piers are of masonry with foundations from 76 to 22½ feet below water level. There are three spans over the mid-river, 90 feet above low water and admitting 900 feet shift of channel. The use and fall of the river at this point is 40 feet, and the depth of scour is 43 feet. During the progress of the work the river attempted to change its bed, cutting in over 1,400 feet just above the bridge. The successful controlling of the river was probably the most difficult part of the undertaking.

**IRON TELEGRAPH POSTS** have been introduced with great success in Switzerland and are being extended daily. They have been put up along the railways between Basle and Dudingon, Otten and Zurich, and St. Gallen and Rorschach—a total distance of 250 miles. In Prussia they have been placed experimentally on the railroad from Weissenfels to Gera, and on the line between Berlin and Potsdam. It is thought that they will altogether replace the wooden poles in Germany.

**LARGE ATLANTIC STEAMER.**—The "Spain," lately built by the Baird Brothers, of Birkenhead, England, is one of the largest Atlantic steamers ever constructed. Her length is 437 feet, breadth of beam 43 feet, burthen 4,900 tons. She has accommodations for 1,200 first-class and 1,400 steerage passengers. Her engines are stated to be the largest ever constructed on the compound principle.

**COPPER BALLOON.**—A balloon composed of copper is so far completed, that it is now exhibited to the public; this immense globe is formed of sheets of copper, united and soldered. The object proposed by this experiment is to resolve the problem of the practicability of the employment of metals in the construction of balloons.



## CORRESPONDENCE.

### A Trip to Colorado.—No. 5.

BY OUR OWN TRAVELER.

#### Ores of Gilpin County.

A question which is asked by many is, as to the value of the ores here. I think that outsiders hardly do justice in their estimates. I can, however, in this matter but refer them to the columns of the *Register* and the *Herald*, where they will find the best information attainable. Mr. G. W. Baker in his pamphlet on the treatment of ores gives 45 assays of undressed tailings which show an average of \$27.86 per ton; 23 of blanket tailings average \$59.33 per ton; and 38 of dressed tailings average \$42.90 per ton. These figures will give a slight indication of what the value of the raw ore must be. From my talks with well-informed gentlemen here, I am led to the belief that, with improved processes, Colorado is bound to be a first-class mining country. There is manifestly room for improvement here in the treatment of ores; but the ores occur in such enormous abundance that mining is sure to be profitable.

In this connection, I would also quote from a most excellent publication, the *Rocky Mt. Directory and Colorado Gazetteer*, published by S. S. Wallihan & Co., Denver. This gives a statement of ore extracted from the Kent county lode during five months in 1870, and then says:

"From this statement it will be seen that the cost of mining 1,375 tons, was \$7,125.25, an average of \$5.18 1-5 per ton, and that the stamp mill returns from this amount to \$16,827.25, an average of \$12.23 4-5 per ton. Add to the expense of mining, the cost of hauling the ore to the mill and milling, \$5.25 per ton, which amounts to \$7,218.75 for the 1,375 tons, and deduct these sums from the amount received, and the balance in favor of the miner will be \$2,483.25 clear gain above all outlays of every description. In this calculation, no allowance is made for the value of tailings. If the miner realized eighty per cent. from his 1,375 tons of ore, instead of thirty per cent. which is the highest average yielded by the stamp mill process, from some species of reduction works, which would not increase the expense of reducing the ore above that of the stamps, his profit on this amount of ore would be \$30,528.66, or about \$22.20 on each ton, a very handsome profit for five months' work, where only a small number of men were employed. These figures give not only a fair idea of the general expense of mining and milling in the gold regions of Gilpin county, but a glimpse at the enormous loss annually resulting from the absence of reduction works suitable for the treatment of sulphuret gold-bearing ores."

And from another table given, they draw the following conclusions: "This sum would be the total cost of mining 9,366 tons, with wages \$4 per day. Deduct from this twenty-five per cent., the difference between labor at \$4, and the present price, \$3 per day, which makes the sum of \$25,564.00, and we have, as the total cost of mining, 9,366 tons, \$76,692.09. As no deduction is made in this estimate for the decrease in the price of mining supplies since 1868, the actual expense of mining this quantity of ore, at the present time, will fall short of this estimate at least 10 or 12 per cent. From the best information we could gain from practical miners in Gilpin county, we think it fair to place the real average cost of mining gold ores at from \$4 to \$6 per ton."

Mr. G. W. Baker has been investigating the merits of the Kean machine for previous concentration of the ores. I would gladly quote at length, but my letter on this subject is already too long, I fear.

#### The Mills.

For information concerning the mills, I must also refer to the papers above-mentioned. The old plan has been to crush over copper plates and blankets, and to concentrate the tailings in sluices. The Bartola pan has been used here very considerably for amalgamating blanket tailings, etc., but is not to be called a very good device. I could say that the machinery of very many mills is decidedly

old-style compared with other places. But I see such a determination to try new ways and the introduction of improvements, that I am afraid that my remarks may be old, before they appear in print. I will, however, speak of some of the mills which I visited.

The BOBTAIL MILL, at Black Hawk, has 20 stamps and 3 large size Bartola pans which grind 600 pounds, in two charges, in 24 hours. Mr. H. Lake kindly showed me through this mill, which works on custom ore in part. The stamps weigh 500 pounds, drops 28 to 30 times per minute and crush 15 tons in 24 hours. The tailings are sold to Hill's smelting works for \$25 to \$30 per ton. The machinery, of good workmanship, was made by the Port Pitt works of Pittsburgh. They have a Stillwell heater, and the engine is 20 horse power. They were, at my visit, working ore for the Bobtail, Fisk and Kansas lodes. That from the latter yielding 7 to 8 ozs. per cord. They use composition copper plates, which they like especially for low-grade ores. I was very much pleased with the management, which is alive to the times and ready to introduce any improvement for saving tailings or working ores.

The Consolidated Bobtail mine has its shaft No. 2 down 530 feet. There are 200 feet of water in the mine. A tunnel is now being run in from Black Hawk to save pumping, etc.

The SENSENDER MILL is superintended by Mr. C. F. Harpin and is at present working on Bobtail ores. It is run by water-power, has 20 stamps and 6 pans, and runs day and night. The FURLETON MILL is also run by water-power. It has 15 stamps. Many other small mills are now at work when water is plenty.

The SMITH & PARMELEE MILL is located at the Gregory lode. The company own 200 feet on this lode and 800 feet on the Briggs. These two veins come near together at the top, but at the lower end of the shaft are 60 to 70 feet apart. The mill has 25 stamps, dropping 36 times per minute and 9 Bartola pans. They run through 3 cords of surface ore or 2 1/2 cords of undecomposed sulphurets. The engine is 75-horse power. The shaft is 600 feet deep, is close to the creek, and is filled with water. The company could make no arrangements with the others higher up on the lode, and as they could not afford to drain other people's mines gratuitously, this is the result.

The BLACK HAWK MILL is the largest in the Territory, I am told. It was built in 1865. They have a 100-horse power engine, and forty stamps weighing 1,000 lbs., and 25 weighing 550 lbs. The heavy stamps drop 16 and the light ones 30 times per minute. It cost the company 19 1/2 cts. per pound for freight from St. Louis, on some 200,000 lbs. of machinery, which adds up to a very pretty sum. They have put up one or two bidders to run by machinery and have had shaking tables, but none of these satisfied them, and they prefer hand-budding. They are running on custom ore, as their mine is not worked at present. Mr. Geo. E. Congdon is the superintendent.

The EMPIRE MILL, owned by Borham & Miller, has a 25-horse power engine and 20 stamps. It runs night and day in Gregory 2d ore, which yields about 8 oz. gold to the cord. In their last 30 days' run they worked 60 cords. The tailings yield about 1 1/2 oz., to the ton and are sold to Hill's smelting works.

The SAULSBURY MILL is owned by Mr. E. L. Saulsbury. The able superintendent, Mr. A. Behr, kindly conducted me through the works. There are 20 500-lb. stamps, dropping from 25 to 30 times per minute, and two pans. They have here a Keith furnace, which is not running, however.

The POLAR STAR MILL has 32 stamps and crushes 24 to 25 tons per day. It has also 8 sets of Chili mills. The owners are Kimber, Garret & Co. The mill runs on custom rock. They use water-power at present. Indeed many of the mills in North Clear Creek gulch use water-power at this season of the year, and steam-power the rest of the time. Water is abundant about 4 months.

#### Boston and Colorado Smelting Works.

I visited the Boston and Colorado Smelting works, which are under the management of Prof. N. B. Hill, who kindly conducted me through the establishment. This was built four years ago and has been running ever since. The assaying department and the technical conduct of the works are under the more immediate supervision of Mr. Herman Beeger (?) who has had an experience of over 25 years in this business.

The grounds occupy an area of 1,000x250 feet. The first place I visited was the de-

partment where men were employed washing ore from the Pewabic lode. This is very clayey and is first concentrated in long sluices and then in jigging machines, of which they have four.

I next went to the mill where the matt produced is crushed and ground, then sifted and sacked for shipment to Swansea. The average shipment is 40 tons per month.

There are three large reverberatory furnaces for smelting, 9x13 feet, with a stack 50 feet high, 3 feet square at the bottom and 2 feet square at the top. The charge is two tons, and is drawn every six hours. Concentrated tailings are bought from the stamp mills and used for fluxing. For these they pay in currency the full value of the gold and silver contained less, \$24.

Previous to smelting the ores are roasted in heaps of 150 to 200 tons each. This operation requires some two months.

This company has some 3,000 tons of ore now on hand. The capital invested is stated to be \$300,000. They employ here 40 men, and 20 more in getting and hauling wood, which averages \$5.50 per cord; 40 cords are said to be burned in 24 hours. The fire brick comes from Golden City.

The works treat only first-class ore. The management has been an eminent success, although all other attempts at smelting made here have failed. The company undoubtedly makes large profits.

#### Blooded Stock at Salt Lake.

[From our Special Correspondent.]

EDS. PRESS:—We have enjoyed a pleasant though "short season," here at Ogden City, mostly among the farmers, who have come in from the Cache Valley and vicinity to attend the grand Mormon jubilee, held annually on the 24th of July, at some place within the Territory where all the officials of the Church—and a portion of "the rest of mankind" congregate to celebrate the incoming of the first great delegation of the Church of Latter Day Saints. In this connection, we desire to notice, briefly, the arrival in this city a day or two since, of Colonel Peter Saxe, the noted eastern dealer in improved breeds of stock.

His cattle are the famous "short-horn" breed, (Durhams) and are twenty-three in number, bulls and heifers. They are thorough-bred, "American Herd Book" register, and are from fourteen to thirty months old; but few of them, however, going beyond sixteen months. They are pure reds, whites, roans, varied, and red and white, the red preponderating. There are also one hundred and sixty head of "thorough-bred" "Cotswold" ewes and rams, the yearlings among which average, it is said, from one hundred and seventy-seven to two hundred pounds weight; their fleeces are also about thirteen pounds; and in length, varying from seven to sixteen inches. The whole of the animals have been purchased from 41 of the best folds in Kentucky.

All of this stock, cattle and sheep reached the terminus at Ogden on Friday evening. The amount of means invested by the gentleman is upwards of seventy thousand dollars; and the Cynthia, Ky., *News* of the 22d ult., in noticing his purchases, says they constitute the largest exportation in number and cost, ever made from that State.

This stock was purchased in the famous stock counties (the "Blue Grass" counties) of Bourbon, Fayette, Scott, Harrison & Clark, making nearly a clean sweep of all the pure-blooded young Cotswold sheep for sale, in the State. The numerous parties by whom the animals were sold gave Colonel Saxe along with each a full and guaranteed pedigree of both sire and dam. It is claimed and conceded by the most experienced breeders in that State that the progeny of the Cotswold stock, bred in Kentucky, are superior in carcass and in the quantity and quality of the fiber of the wool, to those of their sires and dams imported hither from England and Canada. This remarkable fact is attributed to the dry and equable climate of the State, while that of England is damp and variable, and that of Canada is prejudicial, on account of the long and cold winters and often excessively hot summers. The design of Col. Saxe in exporting this fine stock is to increase the carcass and the quantity of the wool of the Mexican breed in California and Oregon.

Col. Saxe sold to Joseph A. Young three of his beautiful short-horn heifers; three of his hulls to Bishop Preston, Geo. L. Farrel, Esq. and Bishop Loren Farr; also some of his fine 200 and 300 pound lambs and sheep to Messrs Jennings and Geo. Q. Cannon, (editor of the *Deseret Daily News*) Bishops Woodruff and Lay-

ton of Salt Lake City; also to Messrs. John S. Smith, Kimball and others, some thirty head in all, in this vicinity.

We congratulate these leading stock men of Utah—who were able and willing to invest so liberally in these splendid animals. Col. Saxe, will start for the golden State—at once with the balance of his extensive fold and herd. We learn that much of it, is already engaged in the vicinity of Petaluma, Sonoma county.

It will be remembered that this gentleman was at our last State Fair, with a fold of these fine Kentucky Cotswolds, and took several of the leading premiums; also at Stockton, San José and Petaluma. This stock being of the first-class, we hope Californians will not allow a hoof of it to pass by to Oregon. Especially as the prices are quite as low as it is sold in Kentucky.

#### Mining About Ogden.

I find that there is some little mining excitement at this place, and some few lodes have been taken up and recorded, with regard to which I have gathered the following from those who appear to be well informed on the matter.

The mines are all located in the Wahsatch range of mountains, and among them have been found several

#### Tin Lodes

Which are located about three miles from the city. One is named the Morning Star, and is owned by Horricks & Co., of Ogden. It is said that this lode averages 20 feet wide at the cropping, and can be traced for some distance. Assays made in St. Louis show that the surface rock will yield 70 pounds of tin to the ton of rock; while at the depth of ten feet it showed a yield of 210 pounds to the ton.

The Star of the West, is another good mine, from some ore from which a small bar of tin was obtained by Parpe & Beessel, assayers of this city. This is represented to be a large and extensive mine, and the owners have sent a large quantity of ore to St. Louis for assay. I hope to get the returns in a short time, when I shall be able to advise you of its value.

Specimens of this ore and the metal taken from it will be sent to the Mechanics' Exhibition in your city. An assay of this ore, here, returned 256 pounds of tin to the ton of ore.

The Unele Sam lode, one mile from this city yielded \$48 in gold and \$26.70 in silver from surface rock, by a late assay. These and some few other locations are the first attempts at mining or prospecting for mines in this part of Utah, the inhabitants of which are not as yet very well versed in prospecting. The Mormons here, say that if gold and silver or tin are to be found in these mountains they wish to be the folks who get it. Heretofore, however, they have given all their attention to farming and gardening. Leaving Ogden, and passing a few miles west I arrived at

#### Brigham City.

Here I also find the Latter Day Saints talking about mining matters, and it is said that the farmers and other good citizens of this hurg have formed an association on the cooperative plan for prospecting. They have already found some very good prospects, and have run a few drifts; but it being now harvest time, they have left the mines and gone to the fields to gather the golden grain. After harvesting is over they will renew their prospecting operations with a good heart. They expect to send a few samples of their minerals to the Exhibition in your city.

#### The New Woolen Mill

Is now in operation, and doing a good business.

#### The Orchards and Gardens, Etc.

The orchards are in full bearing and loaded with fruit—apples, pears, peaches, apricots, etc.; while the gardens are teeming with their produce of vegetables, melons, etc. The fields also look well, as a general thing. The corn is good and so is the wheat and oats, where the grasshoppers have spared them. These insects have been very destructive in some locations; but the "Saints" bear it with a most commendable patience and resignation, saying that God sends destruction first to the "House of the Lord."

Many about here are going largely into the business of stock raising as will be seen by the former part of this communication. We wish the people here the fullest measure of success. They have certainly been very persevering and industrious as is shown by their early presence in this distant mountain valley, and the manner in which they have subdued it from Nature's wildness and solitude, and brought it up to its present high state of cultivation. Yours truly, M.



## MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

### California.

#### ALPINE COUNTY.

**GLOBE MINE.**—*Miner*, July 29th: The Levinthan ore has netted the mine on the dump not far from \$50 per ton. It is used in immense quantities for the amalgamation of free silver ores. The developing of a large body of argentiferous copper in the Globe mine has put it also upon a paying basis. A sample of the first-class ore analyzed by Prof. Rickard yielded as follows:

Gold.....0.001=\$ 5.02  
Silver.....0.043= 18.85

Copper.....67,850=\$23.87  
Iron.....13,500  
Antimony.....2,250  
Sulphur.....20,500  
Alumina.....3,210  
Magnesia.....5,375  
Silica.....18,112  
Loss.....159

100,000

For the copper alone this ore is worth on the dump over \$50 per ton, and the Dayton people offered to contract for 100 tons. The combining of a chimney of ore has been followed for upwards of 80 feet, and in one place a pit was sunk upon it eight feet deep when the vein opened out to three feet of solid ore, and five additional feet of soft ore that will have to be dressed in Cornish style to fit it for market. The present limited development justifies the most sanguine hopes of an immense body of rich ore.

**SILVER GLANCE.**—Ore in small quantities was developed in the raise in this mine this week. The Monitor and North-western mill is in a forward state of completion, and before August shall have passed a stream of bullion will have commenced to flow out of Monitor.

#### BUTTE COUNTY.

**CHEROKEE.**—*Orville Record*, Aug 5th: Four or five hundred men, are now encamped in the vicinity of Cherokee Flat, engaged on the various ditches for bringing water to that locality. The Cherokee company have about one hundred and fifty on the line of their ditch from Butte creek; the Spring Valley Company have about the same number on their works near Conecaw Valley, and Mr. Hendricks has some two hundred on his ditch from the West Branch to Morris Ravine.

#### CALAVERAS COUNTY.

**NEW MILL IN OPERATION.**—*Chronicle*, Aug. 5:—The new first-class mill, Hartigan & Co. proprietors, on the Whisky Slide mine, commenced crushing last week. The battery is composed of ten stamps, a 50-horse power engine furnishing the power. A big "clean up" is expected soon.

**GOOD ROCK.**—Favorable news is received from the "Wolverine" and Railroad Flat. The shaft commenced by the Co. who recently purchased the mine has reached 100 feet, and the lead shows remarkable well throughout the entire distance. Hoisting works, run by steam have recently been placed on the claim. Eighty tons of quartz taken from the shaft unassorted, crushed in Harris' mill at Sandy Gulch, yielded \$25 per ton. H. H. Sheldon is the energetic supt.

#### LOS ANGELES COUNTY.

**BULLION.**—*Los Angeles News*, July 29: Three hundred and twenty-six bars of bullion, weighing in the aggregate 27,493 lbs., were received from Cerro Gordo yesterday. Also 205 bars from the O. L. S. L. Co.'s works same place, and 736 bars from the Union works.

**NEW MINE.**—Parties who have been prospecting say that new mines have been discovered within 75 miles of this city. The ore found is a species of galena, and is said to be very valuable.

**ITEMS.**—Same of 5th:—Eighty sacks of ore from Ivanpah, Clarkedistrict, received. Mines reported as continuing to flourish.

The San Gabriel M. Co. (placer) is reported taking out dirt worth \$3 per pan.

#### NEVADA COUNTY.

**SPLENDID YIELD.**—*Union*, Aug 5th: Wednesday last a clean-up was made at Ben McCauley's mill, Boston Ravine, from rock from the Carhiow ledge, Allison Ranch mine. The proceeds were worth \$1,400 or \$175 a load.

**TOWN TALK MINE.**—*Transcript*, Aug. 4: The Town Talk is a gravel mine about a mile east of Grass Valley. It has been worked for a number of years with profit

and the ground will last an indefinite time, with all the force which can work upon the claims. The gravel is run through a mill, and until the 5th of July last, the mill was driven by water power. Since that date the five stamps of the mill have been run by a steam engine. A clean up was made on Monday and gold to the amount of over \$4,000 was taken out. This gives a profit of over \$100 a day to the owners above expenses.

**OUR YIELD.**—*Gazette*, Aug. 2d: It is said that the yield of all the mines of Nevada county, for the last year, will not fall short of \$7,000,000.

**THE BOWERY MINE.**—*Union*, Aug. 5th: We regret to say that so many difficulties are in the way of the reconstruction of this mine that there is no present prospect of a start up.

**NEVADA QUARTZ MINE.**—*Transcript*, Aug. 2d, says the old Soggs' mine started up yesterday on excellent rock. The parties in charge of the mine found excellent quartz, less than 40 feet from the mill.

**GREEN HORN MINE.**—*Union*, Aug. 6th: The Green Horn Mine is turning out splendid rock. The water supply is so short that milling can not be done. The Green Horn ledge is over three feet in thickness and is sending up ore which will mill, at least, \$30 per ton.

**MINING LOCATIONS.**—*Gazette*, Aug 2d: J. H. Reader and others have located 125 feet by 60 feet each, situated in Allison's Ranch and French Corral Mining District, in Bridgeport Township Nevada county, for mining purposes. Sidney Power & Co. have located for gravel mining purposes 1,000 feet on Bloody Run, in Eureka Township.

#### PLACER COUNTY.

**NEW LOCATION.**—*Herald*, Aug. 5th: Yesterday, Thomas P. Ford & Co. recorded a claim, river and quartz ledge, called the Junction Divide Company's claims. These claims are located at the junction of the North and Middle Forks of the American River, about one and a half miles from here. The locators will immediately commence the development of the claims.

**DILLON MINE.**—*Stars and Stripes*, Aug. 3: Specimens of quartz thickly studded with gold, from the Dillon mine near Rock Creek, have been exhibited to us. We are informed that by working test the returns from this rock run away up into the hundreds of dollars per ton.

**CEDAR LEDGE.**—*Herald*, Aug. 5th: This claim has been worked occasionally for four years. It is now beginning to attract general attention. It is a monster ledge, showing a width of thirty feet, and at five feet from the surface yielded, working test, \$78.38 per ton, and in the same opening, at nine feet from the surface it pays \$240 to the ton. Mr. Nickerson has located a water right in connection with the claim and is making every arrangement for the thorough working of the mine. The claim is located north of Bear River.

**RICH STRIKE.**—*Stars and Stripes*, Aug. 3d: Gold-bearing quartz profusely loaded with free gold, has been struck within the past week both at the Minarica and Cox & Denton mines, about midway between this town and Ophir. We are assured that much of the Minarica rock is as rich as the best that has been taken from the famous Green mine, near by, and that the Cox & Denton ore is scarcely inferior.

**RATTLESNAKE BAR ITEMS.**—*Cor. Stars and Stripes*, Aug. 3d: The North Fork ditch is dry two-thirds of the time, which is a great loss to our miners.... A chunk of amalgam worth \$58 was the result of two days' drifting by one man in J. H. Campbell's claim last week. The Reno claim may be better, it is in the river and the former is in the bank. If the water can be kept in the North Fork ditch I would not change places with the Bald Hill or Ophir quartz districts.

**THE WESKE MINE.**—Turkey Hill paid a little over \$3,300 for the week; about \$500 per day to its owner. Unless the bed-rock commences rising again shortly, weske will perfect necessary appliances for taking advantage of the down grade and getting out fully the usual amount of the rich gravel which shows no signs of diminution in his wonderful claim.

#### SIERRA COUNTY.

**GOOD PROSPECTS.**—*Age*, Aug. 8th: The Primrose lode at Hog Cañon looks splendid and prospects well. It is a good mine, and under present management will soon be on the paying list.

The *Messenger*, 29th says: Helmet & Co., on Goodyear's creek have got their tunnel into gravel which prospects rich.

### Nevada.

#### COPE DISTRICT.

**BULLION SHIPMENT.**—*Independent*, 27th: During July, the shipment of bullion from

Cope district, through Wells, Fargo & Co.'s office, in Elko, amounted to \$15,005.

#### ELY DISTRICT.

**BULLION SHIPPED.**—*Record*, Pioche, Aug. 3d: Wells, Fargo & Co. have shipped since July 29th, \$51,111.89. Shipments for the remainder of the week in the same proportion are promised.

**AMERICAN FLAG.**—A lot of 20 tons of ore shipped and worked some time since milled \$172 per ton, and the bullion was .846 fine. About 100 tons of ore are at present on dump. The proprietors intend to crush no more rock until after the erection of the Stetefeldt furnace in Meadow valley, as they are confident of at least \$300 per ton from the processes used by the Stetefeldt.

**WESTERN EXTENSION, MEADOW VALLEY.** The shaft is at present down 300 ft. On all the five stations ore is in sight, but drifting is being carried on only from the 200 and 300-foot levels. At present raising about five tons of ore per day, with 250 tons on the dump.

**BOWERY.**—Incline shaft down 115 ft. and vertical shaft down 85 ft. The ledge still holds good in both places. But little ore is being taken out at present, as the dumps are full of first-class rock which averages about \$125 by assay. They have on dump at present about 400 tons. It is the intention to erect a whim, etc., at this mine soon. Ore will be sent to the mill for crushing as soon as the present contract on which the mill is now running has been finished.

**PIOCHE.**—Drifting is going on rapidly in the east and west winzes, sunk on the 200-ft. level, and at present 75 ft. in depth. In the west winze stoping is going on, and a large body of first-class ore is being opened up. As soon as the engine for hoisting arrives, sinking of the shaft will be resumed and prospecting pushed ahead with all speed. Ore is being shipped daily to the Chicago mill, in Meadow valley, in sufficient quantities to keep the mill steadily running, and a large amount constantly on hand on the mill dump.

**ALPS.**—Main shaft down 126 ft., and drift from the bottom in 25 ft. In the drift the ledge continues very good, being some three ft. in width. Thirty tons of ore were shipped to the mill last week, the pulp assay of which was \$300. About 100 tons of ore on dump at present. The ledge has been struck in the east shaft, which is down 70 ft.

**CONDOR.**—Shaft down 60 feet. A drift has been run on the ledge 45 ft. from the top, and the indications are that a large body of rich ore will be struck at an early day. About 40 tons on dump which assays on an average \$100 per ton. The mineral in the ledge is about three ft. in width.

**RAYMOND & ELY MINES.**—The Burk shaft is down 270 feet and the Creole shaft 250 ft. Both mines have very favorable indications of good pay ore at these levels. The old backs continue to hold out, and on these alone the usual dividends could be made for some time to come. The feature of these mines during the past week has been the very rich deposit found in the Lightner shaft, of the Panaca ground—ore in large quantities and of the highest grade being struck.

**MEADOW VALLEY.**—The steam hoisting works and engine recently erected at the shaft of No. 3 are working smoothly and giving entire satisfaction. The engine for No. 7 shaft arrived on Friday last and will be in place and ready for work to-morrow (Monday). From 45 to 50 tons of ore are being shipped daily to the mill in Dry Valley, but this amount will be increased to 60 tons as soon as No. 7 engine starts up. The mine is looking fine on the lower levels. Over \$150,000 have been shipped on the July account.

**NIGHTINGALE.**—The new shaft of this mine has been sunk 42 feet. A fine looking body of ore was struck on Thursday last, and the indications of soon striking a large body of rich mineral are exceedingly good.

**EXCELSIOR.**—Shaft 60 feet in depth, with a well defined ledge of solid mineral about one foot in width. Still sinking. About 20 tons of ore on dump, which assays from \$100 to \$2,000 per ton. It is thought the rock will mill an average of \$300 per ton.

**CHAPMAN.**—Down 175 feet and sinking on ledge, which averages two feet in width. Drifting will be commenced on the 1st of August. About 20 tons of ore on dump assaying from \$125 to \$2,500.

#### EUREKA DISTRICT.

**MILLING ROCK.**—*Eureka Sentinel*, July 25:—To-day the owners of the General Lee mine, in this district, ship several tons of fine milling rock to Austin for reduction. They have much more on the dumps. A mill with from 15 to 10 stamps will be in

complete running order within three months from now.

**COMPLETED.**—The sale of the site for the new mill of the Pinto S. M. Co. was completed yesterday. Milling has commenced on the ores now being extracted from the Maryland mine at Pinto.

**THE LATEST RICH STRIKE.**—The Fannie B. mine is situated in N. Y. cañon, one-fourth of a mile from the Roslin Smelting works, and is producing six tons of ore per day, which will average \$300 per ton. Some of the ore has been worked and resulted in a yield of \$480 per ton.

**RICHMOND.**—The yield of bullion, last Monday, by the furnace of the Richmond Co. was 10,688 pounds, of high grade valued at \$2,500.

**PROSPECTING.**—During the last three or four months there has been quite a stir among the prospectors of this district. Many new ledges have been discovered, while old locations, half prospected, have been fully developed into full grown paying ones.

#### HUMBOLDT.

**BULL RUN.**—*Register*, Aug. 5th: The Blue Jacket, Johnson, Ontario and Nevada companies are all taking out large quantities of very rich ore.

**ITEMS.**—*Elko Independent*, July 22d: The company owning the El Dorado is down 60 ft., and has a 5-foot ledge, well-defined and rich.

The Monitor is prosecuting its work upon a 4-foot ledge, well defined and very rich.

The Constitution mine is sinking on the ledge at a depth of 30 ft., with a 3-foot ledge of good ore, some of which assays \$5 per ton.

Pride of the West is down 85 ft.

The Independent Co. has out about 100 tons of high grade ore waiting for the stamps to be put in the upper mill.

The chloriders are still at work. They have made about \$20,000 within the last three months.

**SEMINOLE MINING CO.**—*Silver State*, Aug 5th: They have run a drift from the main tunnel about 70 feet, and from the quartz and mineral found within a few days past the prospects are flattering for a good mine. Once mineral is reached they will have plenty of ground to work. The present level will leave them with about 500 feet working ground above it.

**SACRAMENTO DISTRICT.**—*Llewellyn* mine at a depth of 40 feet the ledge is four feet wide, with an excellent showing of sulphuret ores.

**SEVIER MINES.**—*Reveille*, Austin 31st: A two-stamp quartz mill has been started to test the ores of the Sevier mines. The amount already worked averages \$200 per ton.

**STARTED UP.**—*Reveille*, Aug. 3d: After nearly six weeks, the Manhattan mill started up yesterday with its amalgamating capacity doubled. The supply of ore is abundant. The Citizen's mill is also running.

#### WASHOE.

**SAVAGE MINE, A NEW INCLINE.**—*Virginia Enterprise*, Aug. 2d:—A new incline was commenced in this mine yesterday morning at the 1,300-foot level. The hoisting compartment will be provided with self-dumping cars. When the incline shall have attained a depth equal to 100 feet perpendicular, drifting will be commenced for a new level. The mine has been put into good shape and is yielding exceedingly well. Two new mills, the Pinto and the Nevada, were started up yesterday on ore from the mine.

**BULLION SHIPMENT FOR JULY.**—Same of Aug. 6:—The shipment of bullion from the office of Wells, Fargo & Co. for the month of July, was 527 bars, weighing 37,681 pounds, and worth \$897,471.25. This is \$179,111.24 less than the total shipment for June.

**OPHIR.**—The new section of the Ophir shaft has been sunk twenty feet. The rock is becoming hard, but blasts well.

**ITEMS.**—*G. H. News* Aug. 5th:—The Chollar-Potosi mining Company has today declared a dividend of \$1 per share.

An assessment of \$1.50 per share was levied by the Virginia Consolidated Mining Company on Tuesday last.

Last week there was extracted and shipped to mills from the Crown Point mine 1,471 tons of ore; estimated value \$51,502.85. The Hale & Norcross yielded only 245 tons, yet had nearly 5,000 tons in the dumps. The Savage yielded 1,093 tons assaying, \$32.25 per ton.

#### WHITE PINE.

**IMMENSE STRIKE.**—*White Pine News*, 5th: An immense strike was made last evening on the line of the North Aurora and Ward Beecher mines, in the old Earl shaft, 116 ft. from the surface. We saw some of the ore, and it is nearly pure stuff.



The Great Western mine, on Treasure Hill was sold this morning. Geo. B. Ellery made the sale to an English company. Mr. Bastian brought in, on Monday, to McCullough & Co.'s assay office, 130 ounces of fine bullion, the product of Constitution and Orofino ledges in Sacramento District. The rock was worked at the Piermont company's mill, giving a pulp assay of \$266 per ton.

Arizona.

BRANDSHAW.—Prescott *Miner*, July 22d: From parties just arrived we learn that several companies at work on the Tiger and other prominent lodes were taking out very rich ore. Riggs & Co., at a depth of over 70 ft., had cut across a vein of quartz 24 ft. in thickness, 18 ft. of which, we are assured, was good paying ore. The Discovery Co. were sacking ore worth \$800 or \$1,000 to the ton; may be more, as it was literally covered with pure silver. Recently there was taken from the Tiger a piece weighing 140 pounds, and whose sides were covered with native silver, was hauled out of the shaft, boxed, and will, eventually, reach San Francisco.

A very rich piece of gold quartz from Humbug creek has created some excitement here, and parties have started out for extension claims.

The Del Pasco mill was nearly completed and ready for crushing. May commence Saturday.

Mr. Opydyke showed us, yesterday morning, a huge slab of silver-bearing quartz from the Davis lode, Black Cañon.

MOHAVE COUNTY.—A notable ledge has been discovered near Beale springs, Wallapai District, Mohave county. Jerry Ridgeway, the discoverer, sent this ore to Messrs. Niles and Mix, who had four pounds of it worked, which yielded three ounces of silver and gold, worth four dollars per ounce.

Miners from Nevada were arriving in Wallapai District. Work steadily progressing.

HASSAYAMPA DISTRICT.—Same of 20th: The Davis lode is yielding a deal of rich silver ore.

J. Voshay has been testing the Emma mine, which runs parallel with Groom creek. He has found genuine horn silver. Six pounds of ore treated by milling process, yielded \$4.50, over half in gold. The mine is about six miles south from Prescott.

WALKER DISTRICT.—R. Wood, a placer miner was recently here. He had several ozs. of course gold. One piece weighed \$3. Water, he said, was very scarce, there having fallen but two showers, this summer, up to the time he left. His pay-streak was about ten feet wide; his gravel paid about ten cents to the pan, and had he plenty of water for rocking, he could make two ounces per day. Mr. Pointer, from same district, informs us that Mr. Shelton was taking ore from his Vernon lode that is rich enough to pay \$1,000 to the ton? Other miners were extracting ore and doing a little placer mining.

WEAVER DISTRICT.—John Davis and others lately got from the Columbia lode, in an anastra, \$140 to the ton. They are down upon the ledge some 30 feet, where it is about two feet thick. They mean to continue work. Mr. Groves showed a piece of the ore of a milky color, with several good-sized particles of gold.

It is stated that about fifty tons of "Great Sexton" ore are to be worked at the Vulture mill to test the mine.

WICKENBURG DISTRICT.—The Vulture lode, we learn, is better and healthier than at any previous time. The deepest shaft is now down over 300 ft., and, reports says, water has been struck. The mill is reducing about seventy tons every 24 hours.

THE "KELLY" lode is the newest, richest mining discovery. It assays well—\$150 to the ton, in silver—is three feet wide, and "thick in proportion." It is less than a mile west from Prescott.

Idaho.

The Lewiston *Journal*, of July 15th, congratulates its community on the ground that the extension of agricultural pursuits is likely to improve the comfort and cheapen the cost of mining by lowering the rates of living. It reports mining interests at Elk City as lively, or more than in former years. There are preparations being made to develop the quartz leads in that district.

Silver City *Avantur*, July 25th: Bullion shipped by W. F. & Co. for the week ending yesterday, 15 bars—\$22,378.07.

SOUTH CHARIOT.—Incorporated in S. F. The Co. includes the Peck & Porter mine and War Eagle mill in its property. It is one of the best and most substantial, and as soon as properly developed, handsome dividends will be the order of the day.

"BOISE BASIN BEDROCK FLUMING CO." has been incorporated. Trustees B. M. DuRell, W. B. Noble, G. W. Craft, J. J. Tompkins, D. H. Alderson, J. G. Bryant and W. C. Whitson. The purpose is to construct ditches and flumes in More creek, Elk creek, Grime's creek and Granite creek, in Boise county, Idaho Territory.

PLENTY OF MINING GROUND.—*Salesman*, July 25: There is lots of mining ground in Idaho at present unconsidered, which is destined yet to yield heaps of gold. It lays in out of the way places, difficult of access, and will require capital to bring water upon it before it becomes productive. Of such a kind are the Copeland diggings, in Boise county, where it is said that there are thousands of acres that will pay first rate wages. The Co. which have worked there have made an ounce to the hand per day. Water is scarce.

Gold and silver-bearing quartz of great richness has been discovered in the Backskin mountains, about four hundred miles southeast of Salt Lake City. The Indians are very numerous and hostile there.

Montana.

Deer Lodge Independent, July 28th: A Phillipsburg writer says a 5-stamp battery is erected for the Speckled Trout. The Nevada process of roasting the ore before crushing will be adopted, and it is believed will be a success. A three-stamp battery owned by Wm. Blay & Hugh Bell, has been erected in town for the purpose of working ore from the Franklin lode, owned by Ellery & Cay.

About \$6,000 was taken out out of German Gulch in 10 days.

RED MT.—*New Northwest*, Deer Lodge, July 21st: The Nevins lode cleaned up last week \$1,400. Deer Lodge parties purchased one-third. Nevins and Brannagan own the remainder. The Dixie lode, owned by Dickey & Parks, are running two astras, with a result of \$25 to \$30 per ton. Canovan, Trainor & Wilson on Thursday cleaned up \$400 for five days' run on the old discovery ground. A new streak prospects \$2 per pan, with 3,000 feet of new ground ahead of them. Andrews, McBride & Co. have struck good pay in their old ground below Cooley gulch. Getzler & Maul are making good wages from their claim at the mouth of Horse gulch, and expecting better developments. Only one China company in the camp—at Cooley gulch. The Moose Creek silver mines are looking better than ever, and the Co. are preparing to ship ore to San Francisco for reduction. There is yet plenty of water in Highland.

LINCOLN.—*Herald*, Helena, 20th ult: Last night DeWitt & Stager brought in 230 ozs. gold.

ARGENTA.—*Gazette*: The furnaces, erected by Tootle, Leach & Co., and Messrs. Bohm & Co., and others, are working a complete revolution here, and Beaverhead county is looking up.

BOULDER.—*Independent*: Carr & Co. are making \$20 per day to the hand. Devine & Co. are rigging a wheel, and will shortly attempt to reach bed-rock in the main hauler. From prospects obtained in the gravel it is believed that if bed-rock can be reached it will be found to be rich. McBurney's Chinese gang have not been successful in operating on Lowland gulch. They are making \$1.50 per day upon the same ground that white men had made from \$4.00 to \$4.50 per day.

Utah.

BOTSFOED MINE.—Salt Lake *Tribune*, July 28th: From a statement published in the Salt Lake *Tribune*, it appears that this mine, recently sold to Englishmen by Buel & Bateman, show from 15,000 to 20,000 tons of argenteiferous galena, three tons of which makes a ton of bullion, worth, at Omaha, \$190 a ton, and of which about half the value is profit.

The Utah Smelting and Milling Co., whose works are situated at Eureka, Tintic, by virtue of success, have now on hand about \$15,000 worth of bullion, the partial result of one month's run of the Homans-vill furnaces.

The Denver (Col.) *Tribune* says Col. Buell, of Nevada, now of Salt Lake, was in Omaha yesterday, and informed Dr. Latham that he had just sold the Utah "Bullion" mining property to an English company, headquarters in Boston, for one hundred thousand pounds sterling—five hundred thousand dollars gold—and got his money.

DISCOVERY.—*Corinne Reporter*, July 29: Judge Elliott has just returned from a prospecting tour on the south-west side of Great Salt Lake, and brings with him some fine specimens of ore. He reports that the party, of which he was one, has discovered extensive ledges near a good lake landing, not far distant from the mine.

Mining Stock Market.

[San Francisco Stock and Exchange Board.]

THURSDAY EVE., AUG. 10, 1871.

MISCELLANEOUS STOCKS.

We note sales of San Francisco Gas stock at \$82; North Beach and Mission Railroad at \$55; and Spring Valley Water at \$75 per share. The last-named company disbursed a dividend of 1/2 per cent. on the 10th inst.—The California Trnst Co. will pay a dividend of 1 1/4 per cent. on the 12th inst.—The People's Insurance Co. paid a dividend of 1 per cent. on the 10th.—Pacific Bank stock sold at \$98 per share.

The following quotations have been carefully revised by F. H. Woods, Broker:

Name.	Bid.	Asked.
U. S. Bonds, 5-20-1865, '67, '68, with int.	101 1/4	101 3/4
U. S. Bonds, 5-20-1865-1867	102	102 1/4
U. S. Bonds, 5-20-1867-1869	102	102 1/4
Legal Tender	100	100 1/4
California State Bonds, 1860-1865	100	100 1/4
San Francisco City Bonds, 6s, 1855	100	100 1/4
San Francisco City and County Bonds, 6s, 1858	100	100 1/4
San Francisco City and County Bonds, 1860	100	100 1/4
San Francisco School Bonds, 10s, 1861	100	100 1/4
San Francisco City and County Bonds, 7s, 1860	100	100 1/4
Sacramento City Bonds	100	100 1/4
Sacramento County Bonds, 6s, 1860	100	100 1/4
Stockton City Bonds	100	100 1/4
Yuba County Bonds, 8s, 1860	100	100 1/4
Santa Clara County Bonds, 7s, 1860	100	100 1/4
Butte County Bonds, 10s, 1860	100	100 1/4
San Mateo County Bonds, 7s, 1860	100	100 1/4
Santa Cruz County Bonds, 10s, 1860	100	100 1/4
Oakland City Bonds, 10s, 1860	100	100 1/4

San Francisco and Miscellaneous Stocks.

Name.	Bid.	Asked.
San Francisco Gas Co.	53	53
Sacramento Gas Co.	53	53
Spring Valley Water Co.	75	75
Omnibus Railroad Co.	60	60
Central Railroad Co.	100	100
North Beach and Mission Railroad Co.	55	55
Front Street, Mission and Ocean Railroad	10	18
Freeman's Fund Insurance Co.	87	100
Pacific Insurance Co.	100	110
Merchants' Mutual Marine Insurance Co.	110	114
California Insurance Co.	100	105
Union Insurance Co.	98	100
Occidental Insurance Co.	97	99
People's Insurance Co.	100	100
The Bank of California	125	136
Pacific Bank	96	98

MINING SHARE MARKET.

In volume the transactions at the Stock Board show a diminution as compared with the previous week, although in certain prominent Washoe stocks, as well as a number of outside claims, the sales have been large and at an advance. The intrinsic merits of a mine will at times assert themselves, and this causes speculators to work with outsiders, carrying such stocks far beyond their true value; and it is at this juncture that insiders gain the advantage. To operate successfully in the stock arena one must know the inside views; true, occasionally legitimate purchases, without the knowledge of combinations or the merits of the investment, result in large gains, but such instances are rare. Mining interests generally have a very hopeful look, and as our mines are coming under better and still more economical management, which, we are glad to learn from all quarters, is the case, the production of our precious metals will be vastly increased. Recently sales of large gold-mining properties in our State have been effected in London, and still others are upon the market; and we do hope that no disappointments will follow these investments, for they seem to be the forerunners of great prosperity to our State and the entire Pacific slope.

The aggregate sales in the Stock Board, from August 3d to the 9th, inclusive, have been as follows:

200 shares Argenta at \$20 50.	20 shares Alpha at \$8.
15 shares Amador at \$23 1/2.	250 shares Belcher at \$30 1/2.
1450 shares Buckeye at \$1 50/22.	8114 shares Chollar-Potosi at \$33 1/2.
1445 shares Caledonia at \$10 1/2.	555 shares Eureka at \$20 1/2.
3872 shares Eureka Consolidated at \$15 1/2.	594 shares Gould & Curry at \$12 1/2.
2214 shares Golden Quartz at \$20 1/2.	1572 shares Hale Norcross at \$35 1/2.
110 shares Imperial at \$25 1/2.	425 shares Ida Elmore at \$7 1/2.
2040 shares Jackson at \$5 1/2.	212 shares Kentuck at \$10 1/2.
1785 shares Lady Bryan at \$30 1/2.	1120 shares Mahogany at \$7 1/2.
5105 shares Meadow Valley at \$20 1/2.	560 shares Monitor and Magnet at \$7 50.
3728 shares Origin Hidden Treasure at \$7 50.	7317 shares Ophir at \$9 1/2.
25 shares Overman at \$5 1/2.	4086 shares Phoenix at \$2 1/2.
1855 shares Pioche at \$11 50.	600 shares Savage at \$31 50.
40 shares Segregated Belcher at \$7 1/2.	4892 shares Sucker at \$30 1/2.
480 shares Yule Gravel at \$11 1/2.	6012 shares Yellow Jacket at \$30 1/2.
40 shares Crown Point at \$10 1/2.	90 shares Daney at \$3 50.
250 shares Raymond at \$15 1/2.	115 shares Consolidated Virginia at \$5 50.
10 shares Pacific Bank at \$4.	60 shares Sierra Nevada at \$14.
500 shares Nevada at \$5 1/2.	10 shares Bullion at \$30.
26 shares San Francisco Gas at \$82.	20 shares North Beach and Mission R. R. at \$55.
50 shares Spring Valley Water Co. at \$75.	

Amount of sales.....\$1,977,387.

HALE & NORCROSS—sold to a limited extent at fluctuating rates. During the week ending August 5th, 273 1/4 tons of ore were extracted. They have in their dumps 4,916 1/2 tons of ore, of which 3,686 1/2 tons is low grade.—Crown Point is dull at recent figures. On the 6th inst. the 1,000-foot level was 113 feet in length, both levels showing about the same quantity of ore. The winze to connect the 900 and 1,000-levels had attained a depth of 33 feet, the last

few feet running in clay and porphyry. For the week ending August 4th, 1,435 1/2 tons of ore were taken out, showing an estimated value of \$46,325, equal to \$32 50 per ton. A dividend of \$10 per share was disbursed on the 10th inst.—SAVAGE sold moderately at uniform rates. For the week ending August 6th, the ore yield amounted to 656 tons, valued at \$32 50 per ton.—BELCHER sold largely at an advance. On the 6th inst. the incline was 40 feet below the track-floor, and the indications are said to be favorable for finding good ore.

CHOLLAR-POTOSI attracted considerable attention, at well-maintained prices. During the week closing August 5th, 1,067 tons of ore were extracted, valued at \$43 37 per ton. A dividend of \$1 per share was disbursed on the 10th inst. Total amount of bullion for July, \$151,122.—YELLOW JACKET was largely dealt in at uniform rates. A dividend of \$2 50 per share was paid on the 10th.—MEADOW VALLEY shows a total bullion product for July of \$193,000. A dividend of \$1 per share will be paid on the 15th.—RAYMOND & ELY, under the recent purchase of contiguous ground, advanced to \$20 50 per share. The bullion product for July aggregates \$62,000.

MINING STOCK QUOTATIONS, AUGUST 10, 1871.

CALIFORNIA.					
	Bid.	Asked.		Bid.	Asked.
Amador.....	\$265	—	St. Patrick.....	\$—	\$40
Eureka.....	16	16 1/4	Yule Gravel.....	10 1/2	11
WASHOE.					
	Bid.	Asked.		Bid.	Asked.
Alpha Con.....	\$ 8	8 1/4	Hale & Norcross.....	\$—	\$3 1/2
Belcher.....	22 1/2	22 1/2	Imperial.....	\$28	29
Caledonia.....	13	13 1/2	Junkie.....	10 1/2	10 1/4
Chollar-Potosi.....	30	30 1/2	Kentuck.....	10 1/2	10 1/4
Confidences.....	9	9 1/2	Ophir.....	12 1/2	12 1/4
Con. Virginia.....	8 1/2	8 1/2	Overman.....	5 1/2	6
Crown Point.....	30 1/2	31	Savage.....	3 1/2	3 1/4
Daney.....	4	5	Sgt. Belcher.....	7 1/2	8
Empirs.....	—	—	Sierra Nevada.....	12 1/2	14
Eschquer.....	—	—	Sincoot.....	13 1/2	14
Gold Hill M. C.....	—	—	Yellow Jacket.....	41 1/2	42 1/4
Gould & Curry.....	—	10 1/4			
WHITE PINE.					
	Bid.	Asked.		Bid.	Asked.
Con. Sil' W'ges.....	—	—	Silver Wave.....	—	—
Mammoth.....	—	—	Virginal.....	—	—
Noonday.....	30c	35c	Central Lee.....	—	—
Orig. Hidden Tr.....	9 1/2	9 1/4			
IDAHO.					
	Bid.	Asked.		Bid.	Asked.
Golden Char.....	\$17 1/4	\$17 1/2	Mahogany.....	\$10 1/2	\$11
Ida Elmore.....	—	—			
ELY DISTRICT.					
	Bid.	Asked.		Bid.	Asked.
Mead'w Valley.....	\$21	\$21 1/2	Raymond & Ely.....	20 1/2	21
EUREKA DISTRICT.					
	Bid.	Asked.		Bid.	Asked.
Eureka Con.....	\$15 1/4	\$16	Phoenix.....	\$ 2	2 1/4
—(S. F. Commercial Herald.)					

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco Journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DAY	DATE OF ASSESSMENT.	DELINQUENCY.	DAY OF SALE.
Buckeye, Lyon Co., Nev.	July 19, \$1.	Aug. 22—Sept. 8	
Columbus M. & M. Co., Aug. 8, \$1.	Aug. 12—Sept. 30		
Cons. Vir. Storey Co., Nev., Aug. 1, \$1.50.	Sept. 5—Sept. 26		
Eagle Q. M. Co., Cal., June 14, \$20.	Aug. 9—Aug. 14		
Hale & Norcross, Va. City, June 29, \$10.	Aug. 1—Aug. 10		
Highland M. Co., Nev., July 13, 10c.	Aug. 1—Sept. 11		
Johnsen Lubricator Co., Aug. 1, 50c.	Sept. 7—Sept. 28		
Nevada Fuel M. Co., Tu. Co., Aug. 4, \$3.	Aug. 11—Oct. 2		
Mahogany, Owyhee Co., T. Co., Jan. 22 \$2.	Aug. 10—Aug. 28		
Marble Falls, Nye Co., Nev., July 12, 50c.	Aug. 19—Sept. 15		
Marcelina, Nev., June 2, 20c.	June 11—August 13		
Meadow Valley Ex. July 5, \$1.	Aug. 14—Sept. 11		
Mina Rica M. Co., Placer, Aug. 8, 20c.	Sept. 11—Oct. 3		
North American Con. M. Co., J. 31, 20c.	Sept. 6—Sept. 30		
Nevada Fuel M. Co., Nev., July 15, \$1.	Aug. 18—Oct. 16		
Neonada, White Pine, July 13, 20c.	Aug. 21—Sept. 19		
Nevada Land & Min. Co., July 25, 40c.	Aug. 29—Sept. 20		
Ophir, Va. City, July 12, \$5.	Aug. 16—Sept. 8		
O. H. Treasure, July 6, \$2.	Sept. 7—Sept. 27		
Ophir C. S. & G. M. Co., Aug. 2, 75c.	Sept. 4—Sept. 25		
Overman, G. H., July 26, \$2.	Aug. 31—Sept. 18		
Phoenix, Lander Co., Nev., July 24, 50c.	Aug. 21—Sept. 19		
Sgt. Belcher, G. H., July 20, \$5.	Aug. 23—Sept. 12		
Shipley, Placer Co., Aug. 2, \$2.	Sept. 6—Sept. 27		
Sumner, Kern Co., June 14, \$5.	Aug. 16—Aug. 30		
Teunemsh G. S. & C. M. Co., J. 28, \$5.	Sept. 4—Sept. 28		
Tallinah, Humboldt Co., Nev., July 27, \$1.	Aug. 28—Sept. 19		
Virginia M. & M. Co., W. P., July 25, 25c.	Sept. 2—Sept. 20		

MEETINGS TO BE HELD.			
NAME, LOCATION, AMOUNT AND DAY	DATE OF ASSESSMENT.	DELINQUENCY.	DAY OF SALE.
Belleuve M. Co.	Annual Meeting, Sept. 14		
Eastport Oons Bay Coal	Adjourned Meeting, Aug. 18		
Ida Elmore	Annual Meeting, Aug. 7		
Meadow Valley	Annual Meeting, Aug. 17		
Mohave & Montreal	Adjourned Meeting, Aug. 22		
San Joaquin and Kings River Canal Co.	Special, Aug. 16		

LATEST DIVIDENDS—(Within Three Months).

Name.	Amount.	Payable.
Chollar-Potosi, \$2.	Payable July 11	
Chollar-Potosi, \$5.	Payable May 30	
Crown Point \$10.	Payable June 10	
Eureka, div. \$2.	Payable May 6	
Eureka (Cal.), \$1.	Payable July 7	
Eureka Cons., 75c.	Payable April 20	
Golden Chariot, div. \$7.	Payable March 10	
Hale & Norcross, div. \$5.	Payable April 10	
Meadow Valley	Payable July 15	
Natomia, div. 1 per cent.	Payable Aug. 5	
North Star, \$3.	Payable May 10	
Overman	Annual Meeting, July 13	
Redington, 1 per cent.	Payable Aug. 5	
Yellow Jacket, \$2 50.	Payable July 10	
Yule Gravel, 50 cts.	Payable Aug. 4	

—Advertised in this journal.

MARAVILL COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved. The Maravilla Cocoa Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For home consumption, the Maravilla Cocoa is sold in packets of one, two, and three ounces, and in tins of one, two, and three pounds. It is also sold in bulk to the trade. Sole Importers, Messrs. Maravilla & Co., 1025-ly, New York, N.Y. Export, Chicago, Ill., and London, England.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.



### Rice Culture—Leveeing, Ditching, Inundating, Etc.

A knowledge of the mode of cultivating rice in South Carolina may be of use in the culture of a different variety of the grain in another climate, on a different soil, and with another kind of labor. But it may be totally inapplicable.

I know of no essay or article in print, on this subject, which does not presuppose some knowledge of the matter, in order that the reader should understand it. All that I have seen embrace only parts of the subject, and are full of technical terms peculiar to rice planters, or rather rice growers.

I will endeavor to give such an explanation of the mode of preparing lands for the culture of rice, and of the process of cultivation, as may be understood by one to whom the whole matter is new. I have to do it on short notice, and must be necessarily brief, and can furnish but rude drawings and diagrams to assist in explaining what I here write.

The variety of rice cultivated in South Carolina, for market, is called "Gold seed," from the bright golden or yellow color of the husk or chaff, which encloses the kernel or grain, which is of itself a pearly color. Another variety, called "White Rice," differing from the former in the pale straw color of its chaff, and in a greater tendency of the grain to break off from the ear when it is being cut and removed from the field, is also cultivated to a small extent. The White rice is said to have been introduced from Madagascar, and was superseded by the Gold Seed, which is said to have been brought from India.

The rice lands in South Carolina are either tide swamp or inland swamp. My experience is confined to the former.

Rice is chiefly and most successfully cultivated on what are called "tide swamp lands," that is, alluvial lands situated on a river, and so near to its mouth as to afford a rise and fall of the tide not less than three and a half feet at spring tides, and so far from the sea that the water is usually fresh at high water tide, at least during the spring and summer. Between these two points all the alluvial tide lands worth planting in rice are to be found, and the extent of this region up and down this stream, and also its breadth from highland to highland on each side or the alluvial valley of the river, varies with each particular river. The soils of these alluvions also vary greatly. The best have a large proportion of bluish or brownish clay intermixed with and underlying the vegetable mold. That which is black in color, and peaty in its appearance is generally bad, though there are striking exceptions to this remark. A shallow mold with sand underlying it near the surface is always bad.

The crops sown highest up the river are liable to be injured by inundations or freshets; those lowest down the river by the want of fresh water during a drouth, at a season when the plant needs water. Lands situated between these two extremes are the safest and most valuable. A rise and fall of six feet in the tide is advantageous—say at high water on the spring tide, one and a half feet above the level of the alluvial land, that gives height enough to flow the fields, and four and a half feet, at low water, below the level of the land, will allow of good drainage.

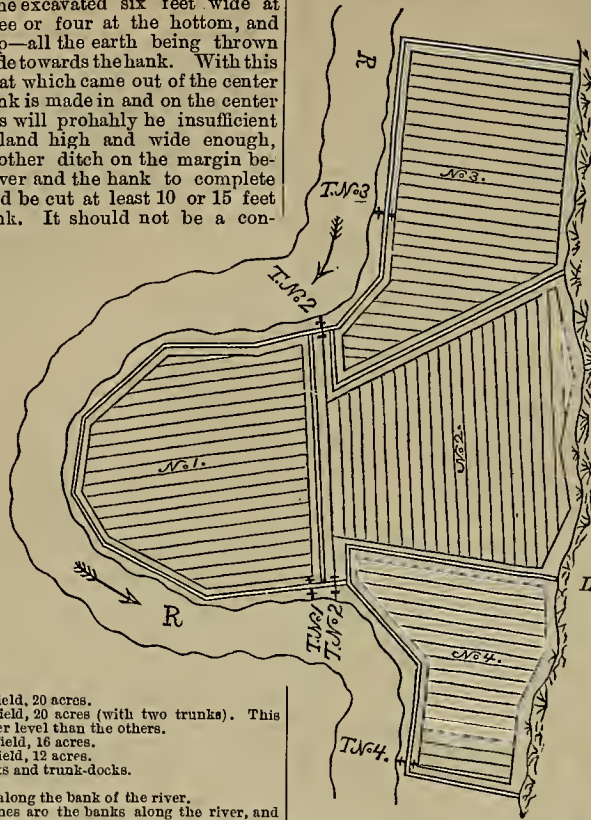
To convert such lands from a state of nature into a rice plantation, or a number of rice fields, requires some skill and much labor, as will be seen by the illustration accompanying this article.

As these lands are subject to be overflowed at high water, at spring tides at least, you must be able to control this overflow, that is permit or prevent it at your pleasure. To do this, the land must be surrounded by a dike or embankment, except where it abuts against adjacent highland. In South Carolina, few rice fields are three feet below the level of the spring tides, and the best are not two below them, so that banks four feet or four and a half feet are sufficiently high.

The dike or hank is made thus: The space it is to occupy is laid out 12 feet wide along the land near the river, leaving a margin of at least 20 feet between it and the river at the points where it approaches it nearest. Along, and in the middle of this space laid out for the bank, a ditch is then excavated three feet wide and three feet deep, the earth being heaped on the side toward the river. This is called a center ditch, and its object is effectually to prevent leaks in and under the future bank in making which the center ditch is filled up, the earth being well packed and rammed into it. Then you lay out another ditch parallel with the course of the hank at about 15 or 20 feet from the inner edge of the hank being next the river. This

ditch must be excavated six feet wide at the top, three or four at the bottom, and five feet deep—all the earth being thrown out on the side towards the hank. With this earth and that which came out of the center ditch the hank is made in and on the center ditch; as this will probably be insufficient to make the land high and wide enough, you cut another ditch on the margin between the river and the hank to complete it. It should be cut at least 10 or 15 feet from the hank. It should not be a con-

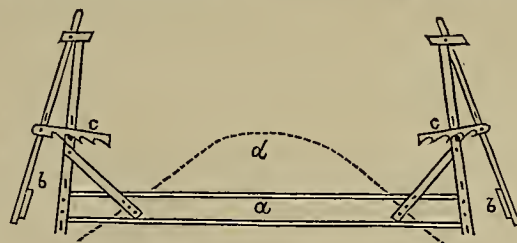
FOUR RICE FIELDS.



No. 1—Rice Field, 20 acres.  
No. 2—Rice Field, 20 acres (with two trunks). This field has a lower level than the others.  
No. 3—Rice Field, 16 acres.  
No. 4—Rice Field, 12 acres.  
T J 1, 2, 3, 4—Trunks and trunk-docks.  
R—River.  
L—Highland along the bank of the river.  
The double lines are the banks along the river, and those dividing the fields from each other. The single lines are the ditches running parallel with the hanks. The light parallel lines across the fields are the quarter-drains. This is not the plan of any particular field or by any scale, but merely by the eye to explain what is written.

tinuous ditch so that a stream of water can run through it, but rather a succession of short ditches separated by several feet of unbroken soil between their ends, that they may in time be filled up with soil. The hank and inner ditch run all around the field and inclose it.

But it is necessary not only to be able to keep the water out of the field, but also to have the means of letting it in at high tide or of letting it out at low tide, at your option. For this purpose, a kind of small flood-gate (subterranean flood-gate) is used, called a "trunk." Thus:

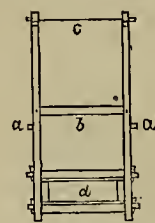


A Rice Field Trunk—Side View.

a—Water way, length 25 feet.  
b—Doors.  
c—Ratchets to keep the doors open at any required width.  
d—Bank.

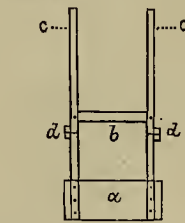
The trunk is a large tube made of wood, put down horizontally under the hank (at some convenient point for draining and flowing) at right angles with the course of the bank. The bottom of this tube, which is the water way of the trench, is about four and a half feet below the level of the surface of the alluvial land, or field. A short but wide and deep ditch called the trunk dock connects the outer end of the trunk with the river, and a similar ditch connects the inner end with the ditch in the field. The trunk being open at both ends, except when the trunk doors close them, the water will flow from the river into the field during flood tide, and out of the field into the river on ebb tide. At each end of the trunk are two posts, one on each side secured to the trunk by a frame work. Attached to the upper end of each pair of

open mouth of the trunk. The door and its arms swing freely on the pivot rod which passes through the tops of the arms also. The ratchet bar attached to the door-arms may be caught on its pin so as to keep the door open, that is, one, two or more feet from the trunk. The water on flood-tide runs into the trunk, the inner door yields easily to the pressure, the ditch is soon filled and the field soon begins to be covered with water. But on the ebb tide, as the water falls in the river, the water in the field attempts to flow out, but the smallest pressure of the returning-water shuts the inner door of the trunk and the water is kept in the field. The next flood tide will put more water in the field



Trunk—Front View.

a—Ratchet pins.  
b—Brace to posts.  
c—Pivot rod.  
d—Water way.



Trunk Door—Detached from Trunk.

a—Door.  
b—Brace to the arms.  
c—Pivot rod holes.  
d—Ratchets.

if it is wanted. As both ends of the trunk and both doors are exactly alike, you can reverse the process, and keep the field flowed or drained, at your option.

The trunk is usually put down while you are making the hank, as it is almost immediately useful in keeping the land drained and so facilitating work on it.

#### Description of Trunk.

This trunk consists of two timber sides, each 25 feet long, 18 inches wide and 4 inches thick. They are placed parallel to each other, four feet apart, and are secured to each other by a number of plank 4 feet 8 inches long, fastened to each end by stout wooden pins, to one of the sides, and jointed so as to get closely up to each other; the whole making a strong



Profile of Cross Section of Rice Field, Bank and Ditches.

a—Bank four and a half feet high. b—Center Ditch filled up. c—Inner margin. d—Ditch. e—Outer Ditch, not continuous. f—The river at highest tide. g—Low water.

these posts by a rod which serves as a pivot are two slighter posts or arms. The lower end of these arms (each pair of them), are firmly fastened to a wooden valve or door, which is made to cover and close the

wooden box 25 feet long, 4 feet wide and 18 inches deep in interior capacity, but open at the ends. Over each end of this box, a frame made of 8x4 scantling is closely fitted as seen in the drawing

of the front view of the trunk—the perpendicular parts of the frame being 11 feet long, and forming the posts or uprights on which the trunk and doors are hung. The frame is strongly pinned on to the trunk and over hangs the length of the trunk a ½ inch, that the trunk door may shut flush or level against the frame and be almost water-tight when closed.

With a good rise and fall of tide, such a trunk will serve a level rice field of from 12 to 20 acres, flowing in two tides, and draining in the interval.

[Concluded next week.]

**NEW VARIETY OF ORANGES.**—The *News* says that of the dozen Chucipa orange trees imported some months by Captain Clarke, but four are growing, though they are thrifty and beyond danger. Of the package of a thousand seeds received but twenty have germinated. An experiment undertaken at so much expense should have succeeded better. However, it is now certain that the new variety has been successfully introduced. A number of trees from Florida have been ordered by Capt. Clarke, and will be received within a few week's time.

**WHEAT IN THE RED HILLS.**—W. W. Owens of Coon Hollow, El Dorado county, last fall put in three acres of barley and one of wheat on a piece of ground nearly on the top of Hangtown hill, and in harvesting finds the yield extraordinary, considering the location, being nearly on the top of one the gravel and cement hills. The three acres of barley turned out nearly one hundred bushels, and the wheat of the "white club" variety nearly thirty bushels. [We have accidentally overlooked the credit for the above items from El Dorado.—Ed.]

#### Influence of Climate on Vegetation.

It is not alone the exterior appearance of plants which climate alters, it has a distinct action on the chemical compounds of vegetables. Dr. Darwin says the chemical qualities, odors and tissues of plants, are often modified by climate in a manner which seems to us extraordinary, and it is remarkable, because it might have been thought that definite chemical compounds would have been little liable to change either in quantity or quality. The hemlock yields no cocaine in Scotland, the *Aconitum nappellus* becomes innocuous in frigid climates. The rhuah flourishes in this country but does not produce those medical substances which make the plant so useful when grown in its own country. The China tree grows well in the west of England, amazingly so in South Carolina; in neither case is theine yielded. The wood of the American locust tree in England is worthless as that of oak (*Quercus robur*) grown at the Cape of Good Hope, or is the Tasmanian gum tree grown in the vicinity of Melbourne. Dr. Falconer says, there is a great difference in the fibre of the hemp, in the quantity of the oil in the seeds of

the linum, and of morphine in the poppy, when these plants are cultivated on the plains or in the mountains of India. The same species of cactus has been carried from Canton, Manilla, Mauritius, and from the hot-houses of Kew. They were all alike in appearance, but the cochineal insect thrives only on the native plant, on which it thrives prodigiously. Monsieur Berthier says, if we compare amongst themselves the ashes of wood grown on land of different kinds it is seen they differ remarkably, which seems to establish the fact that climate has an influence on their constitution. These examples are pertinent, so far as they go, to show how comprehensive and complete must all circumstances be to bring a plant up to its maximum state.

**RAILSTONE—A NEW MINERAL.**—Prof Brush describes, in the *Amer. Jour. of Science*, for July, a new mineral from Greenland. The crystals are octahedral, often very minute, colorless to white; hardness 4.5; sp. gravity, 2.4. The planes of the octahedron are often tinged yellow, and often dull and iridescent from an excessively thin film of iron oxide. It is essentially a hydrous fluoride of aluminum with probably a small amount of calcium and sodium.

The Central Pacific Railroad has just manufactured a new railroad postal car of very convenient construction.



## USEFUL INFORMATION.

### Electricity in the Human Body.

Mr. C. Varley the well known English electrician in speaking of the supposed production of electricity by the living human body, says the sparks produced by combining the hair, by drawing off silk stockings, or by rubbing the feet on the carpet, are illustrations of frictional electricity, which in no way depend on vitality, but are due solely to the proper conditions in the substances rubbed together and the atmosphere. He then comments on another form of supposed bodily electrification, which has led many people to suppose that the brain was an electrical battery, sending electricity through the nerves to contract the muscles, and which may be produced as follows: The terminals of a very sensitive galvanometer are connected each with a separate basin of water. If the hands be then placed one in each basin, on compressing one hand, violently, a positive current is almost always found to flow from that hand, through the galvanometer, to the other hand which is not compressed. By dipping one hand in water, slightly acidulated with nitric acid and the other in a solution of ammonia, and then washing both in water, and compressing either hand, produced a sensible current. Placing both hands in water and dropping a little nitric acid on one, a current is instantly generated without muscular exertion.

These and other similar experiments have led Mr. Varley to the conclusion that no electricity exists either in or upon the body—either as a source of motive power, or otherwise. The phenomena presented he considers due to the different chemical conditions in which the muscles or their parts are placed. In the case of muscular compression, the action was induced by thus forcing perspiration from the pores.

### Science and Patience.

Most people labor for the day or year, or at the most for a life time—having no thought beyond their own comfort and convenience, and the accumulation of sufficient means to render the family surviving them comfortable, according to their sphere. How different with the statesman or man of science. The former looks forward to the needs of the future and distant ages for the basis on which to found his action; working out his deep and intricate problems of political economy with a patience and forecast of which the mere man of to-day can form no adequate conception.

But how infinitely more distant are the expected results of the labors of some men of science. Take the astronomer for instance, and see what he is doing with his telescope.

One of the largest telescopes in the world is owned by the Chicago University. The distinct work of this instrument is to make, in connection with nine chief observatories of Europe and America, an entirely new catalogue of two hundred and fifty thousand stars, determining the exact position of each particular star, so that the astronomers of some far distant age, many thousands of years to come, perhaps, may by again ascertaining their positions, be able to determine therefrom their various motions, and so authoritatively declare in what direction they have proceeded through the illuminated voids. At this moment men are slowly and patiently performing this sublime work, and furnishing those far-off astronomers the data upon which to base their calculations respecting that mighty problem, the direct motion of the sun through space.

### A Vegetable Wool.

The name of vegetable wool is applied to a fibrous material obtained from the leaves of the fir, a manufactory for this purpose having been established near Breslan, in Silesia. The species of pine thus operated upon is the pinus sylvestris, or wild pine, and it would seem that every member of the pine tribe might be turned to similar account. The leaves of these trees on examination will be found to be made up of a fibrous material held together by a resinous substance. The latter may be dissolved out by means of alkalies, leaving the woolly matter behind. Coverlets, blankets, and other articles made of vegetable wool are in use in Austria, and especially in the public institutions of Vienna. The material is warm, durable, and in all respects agreeable; moreover, it possesses the excellent quality of preserving a certain balsamic and decidedly wholesome smell, which nevertheless is so inimical to insects that they never harbor in it, as they do in almost all the ordinary descriptions of the bed material. The resinous matter holding the woolly fibres together—and which is eliminated or dissolved out by the alkalies—is also turned to account, medicinal baths being made with it as a basis, and which are found to be useful in various chronic diseases.

**NOVEL MODE OF SAVING CANDLES.**—The American Artisan says: A recent traveler in Mexico was much astonished at seeing the men who carry the ore come out of the mine each with one eye shut. The foreman, seeing his surprise, explained the matter. He said the candles belonging to the *tarateros* (who drill and blast), are so cheaply made that they do not give sufficient light in the drifts, where it is consequently quite dark, but where, nevertheless, the *tarateros* see well enough not to run their heads against the rocks. But on emerging into daylight they would be blinded did they not take precautionary measures. For this reason, as soon as they approach the mouth of the shaft, at the point where they catch the first glimpse of light, they drop the eyelid of one eye, and keep this down while discharging their ore, and until they have descended the shaft. When they are again in the dark, they open the eye kept hitherto in reserve, and at once they see everything distinctly; while the other eye previously open and blinded somewhat by the daylight perceives nothing at all.

**HOW SNAKES RUN.**—Snakes have scales on their under surface which they can slightly raise. These serve to take hold upon the ground or whatever surface they crawl over. Moreover, their progress is made by means of lateral motion or by wriggling, thus bending the body rapidly and instantly straightening it, holding on to the ground meantime by the scales they make rapid progress. If a snake be watched, he will be seen to hold on by the scales near the head and draw up the body into lateral curves; then holding on to the ground by the scales near the tail and straightening the curves the head is pushed forward. As this process is generally too rapidly performed to be distinctly recognized by the observer, the snake's progress seems a mystery; but where one has an opportunity to observe the snake when he moves very slowly, the whole process becomes plain.

**MECHANICS.**—The day has been when he called a mechanic was to be called a second-class man—was to occupy a lower seat at the feast—and scarcely any but poor men's children were apprenticed to learn mechanical pursuits; and how often have we heard the expression uttered by way of censure and reproach "Oh! he is only a mechanic!" and to follow a mechanical pursuit for a livelihood was considered derogatory to refined society. How different now to what it was then. Then men's worth and merits were tested by the length of their purse. These measures have had their day and gone. The cry now is "for mechanical muscle and brain" all over the country. Ingenious mechanism is a loadstone that unerringly attracts to greatness, glory and renown.

**THE RANGE OF HUMAN KNOWLEDGE HAS INCREASED SO ENORMOUSLY, THAT NO BRAIN CAN GRAPPLE WITH IT; AND THE MAN WHO WOULD KNOW ONE THING WELL, MUST HAVE THE COURAGE TO BE IGNORANT OF A THOUSAND OTHER THINGS, ATTRACTING OR INVITING.**

**PROGRESS.**—Since the introduction of railroads in India, the wealthy Hindoos go on their religious pilgrimages in cushioned cars, over ground which their ancestors traveled on foot, with peas in their shoes.

## GOOD HEALTH.

### Cundurango—The New Cancer Cure.

A plant called the cundurango has been discovered in Ecuador, South America, which is said to be a specific cure for cancer. No discovery in the medical world could be received with greater rejoicing—a cure for consumption, perhaps, excepted—than the new cancer remedy; for while cancers are less frequently met with than consumption, they present a certain, lingering death in its most awful form, and they are, moreover, to a greater or less extent hereditary.

#### Its Discovery.

The history of the discovery of the wonderful qualities of the plant is, as usual with specifics in general, curious enough. It is said that a short time since the ignorant wife of an Indian laborer, finding her husband suffering from what was there called cancer, and incurable, thought it best to put him out of misery by giving him the seeds of the cundurango, (which are really poisonous), but not finding the plant in seed, gave him a decoction of it, but instead of killing him it cured the disease, and rewarded at once the benevolent intentions of the wife and benefitted mankind.

#### Its Introduction in Peru.

From this circumstance, we are told, attention was first called to this wonderful specific, and now the doctors generally throughout Peru are loud in its praises, though it is claimed to have been tried in some localities without producing any remarkable effects in the disease for which it is offered as a specific.

#### Its Introduction in the U. S. States.

Some three months ago the State Department at Washington received a few pounds of this plant from the Government of Ecuador, which remained unnoticed until Dr. Bliss, of Washington City, began to use it in his practice, and with such satisfactory results that he has issued a circular in which he details his experience.

#### Remarkable Instance of Success.

He says that in the case of Mrs. Matthews, Vice-President Colfax's mother, who was afflicted with cancer of the breast, far advanced in its course, with secondary cancerous deposits, the constitutional and local symptoms as well as the typical symptoms of blood-poisoning yielded and finally disappeared under a treatment of twenty-six days. In other cases presenting the various forms of cancer, a rapid progress was made toward recovery by the administration of the cundurango. Dr. Bliss says that from the experiments which he has made with the remedy and the reliable information received from other members of the profession who have thoroughly tested its virtues, he is convinced that it is the most powerful *alterative* ever in the hands of the profession, and that it possesses a specific influence over the poison of cancer. He considers the cundurango as reliable a specific in cancer, scrofula and other blood diseases, as cinchona and its alkaloid have proved to be in zymotic diseases. This positive testimony from Dr. Bliss will be hailed with delight by the thousands who are suffering with cancer.

The Vice-President, Mr. Colfax, has written a letter, which has been published, fully corroborating the statements of Dr. Bliss, with regard to the results of its use in the case of his mother, Mrs. Matthews.

#### How it Acts.

In the above mentioned letter Mr. Colfax writes: "How it cures or effects cancer I cannot imagine. I know how incredulous many doctors are about it, and I would be, too, if I had not seen its results. It seems to separate from the blood whatever it is that causes cancer, and I don't know what that is any more than I know why Peruvian bark cures ague. You can tell your friends, however, when they obtain it, they will notice on the fourth day an improvement, and by the ninth day they will see themselves that the cancer is going away—that is, if it acts with them as with cases I have seen."

#### Mode of Administering It.

The mode of administering the plant is very simple, being merely steeped in boiling water, and the infusion taken internally.

**The Supply Exhausted—An Agent Gone to Procure More.**

The results of the use of this wonderful specific having been so satisfactory, the small supply originally received was soon exhausted, and as Mr. Colfax says, in another portion of the above letter, I have most piteous appeals for it from friends,

offering hundreds for it if it will only stop the growth of the terrible disease; but I have not an iota, and I guess all in the United States is now used up.

Under these circumstances, Dr. Keene, the partner of Dr. Bliss was dispatched to Peru, via Panama, to examine farther into its use in that country and to obtain a supply for this country.

#### The Difficulties in the Way.

Letters have been received from the Doctor in which he states that he found it more difficult to obtain than was expected. The roads to the Laja district are rough and unfrequented, the streams are swollen and dangerous to cross, and the Indians are disposed to throw every obstacle in the way of foreigners, of whom they are deeply jealous and suspicious. However, when he wrote he was on the point of starting for the interior, and was confident of procuring a supply in season for it to reach New York early in August.

#### All Europe After It.

Dr. Keene found that orders for cundurango had been received at Guayaquil from persons in England, France, Italy and other countries, to the Governments of which the Government of Ecuador had furnished samples. None of these orders had been filled.

#### The Habitat of the Plant.

This plant is said to grow in the most inaccessible altitudes of Ecuador, in localities where no beasts of burden can be taken; hence it has to be collected by Indians and packed upon their backs down the mountains to a point which animals can reach, where it will be packed on mules and so transported to the sea coast.

When the announcement of the wonderful virtues of this plant were first made known, it was supposed to be some experiment of quackery; but experience in high quarters appears now to have changed the current of opinion. Whatever may be the virtues of this plant, certain it is, that nothing in the history of medicine has ever before taken such a sudden and wonderful hold upon the minds of men. It is also attracting quite as much attention in Europe as in this country.

#### An Early Supply Expected.

The latest letters from Dr. Bliss seem to warrant the conclusion that he will be able to land a good supply in New York by the 15th of the present month—August.

#### Another Agent Sent Out.

We may add that as soon as Dr. Bliss learned the difficulties which his partner would have to encounter, and in view of the importance of the mission, he promptly arranged with Ex-Governor L. L. Gibbs, of Idaho, who left New York some three weeks since for Ecuador, to render every assistance which Dr. Keene might need in his undertaking. We shall watch with interest for further developments in this matter, and report progress, as fast as developed.

### Iced Water.

During the hot season the excessive use of iced water is one of the most prolific sources of disease and sudden death. In very hot weather, when water is rendered extremely cold by the use of ice in the cooler, no person should drink it in that condition, but should pour in, or draw from the hydrant, as much water of the ordinary temperature as will modify the iced water to about an October temperature. Then he may drink without damage.

Nothing is worse for the teeth than extremely cold water; and many a man has acquired dyspepsia by its bad effect upon the stomach. Not a few have suffered from congestions which were dangerous or deadly. We remember a boy, smart, black-eyed, and handsome, who was connected with our office. He was just old enough to be wise above that which is written. Being one day remonstrated with for drinking two or three glasses of water as cold as ice could make it, he replied tartly, "Water is never too cold for me; I never feel the slightest injury from its use." The weather was extremely hot, and if ever cold water could be used at any time, that, of all others, when the system was overheated, was not the time to use it so copiously. The next day he was not in the office, and the following day he did not come. The third day about noon he made his appearance, and looked as if he had had chills and fever for three months. He drank no more iced water that summer, and probably got a lesson which will last him his lifetime. It is a wonder it did not kill him. A word to the wise is sufficient. *Herald of Health.*



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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## San Francisco:

Saturday Morning, Aug. 12, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, August 9, 1871.—Legal Tenders buying 89½; selling, 90. Gold in New York to-day, 112½.

## Table of Contents.

The Selden Direct-Action Steam Pump, Ill. 81  
SCIENTIFIC PROGRESS.—Weathering of Coal;  
Novel Substitute for Gutta Percha; Origin of  
Species; Durability of Iron.....82  
MECHANICAL PROGRESS.—Elementary Aeronau-  
tic Apparatus; Protecting Telegraph Lines  
from Lightning; New Steam Trap; The St.  
Charles Bridge; Iron Telegraph Posts.....82  
A Trip to Colorado—No. 5; Blooded Stock at  
Salt Lake.....83  
MINING SUMMARY.—Mining Shareholders' Di-  
rectory; Mining Stocks; Market Rates 84, 85  
Rice Culture—Leveeing, Ditching, Inundating,  
Etc.; Influence of Climate on Vegetation. 86  
Electricity in the Human Body; Science and  
Patience; Cundurango—The New Cancer  
Cure; Iced Water.....87  
New Mode of Constructing Flour Mills; Open-  
ing of the Fair; The McGarrahan Claim.....88  
A New Work on Mining Engineering, Ill.;  
Queries for Mechanics; A Convenient Table  
for Gold and Silver Assays.....89  
Domestic Economy; Domestic Receipts; Me-  
chanical Hints; Life Thoughts.....90

## Important Railroad Sale.

The Central Pacific Railroad Co. has finally bought out the California Pacific lines of road from Vallejo to Sacramento, Marysville and Calistoga, as also the line from Donahue to Healdsburg, together with all the boats formerly belonging to the California Steam Navigation Company. This sale places in the hands of the Central Company nearly every mile of railroad in the State. It is said to be the intention of the company to lay a double track between Sacramento and Vallejo.

This purchase leaves the company free to decide upon the question of its permanent terminus, without any reference to competing lines. What that decision will be is perhaps as difficult to conjecture now as ever. Judging from apparent preparations, however, and the large amount of money invested in city front property in Oakland, there is but little doubt but that city will continue to be the principal freight terminus, at least. The machine shops of the company will no doubt be located there permanently; neither can we doubt but that this city will eventually become the real terminus of the road, by means of a bridge spanning the bay from Alameda.

We trust and have reason to believe that this transfer will lead to the early completion of the roads already projected or in process of construction by the California Pacific Company. It is also believed that the Central Company will manage the immense interest, now in their sole possession, for the general good and prosperity of the State; for aside from patriotic considerations, there is no other way in which they can so effectually subserve their own interests.

THANK YOU.—Some one has sent us a nice box of pears from San José, prepaying the expressage, contrary to all ordinary custom.

## New Mode of Constructing Flour Mills.

On a table, near the engine at the Pavilion, may be seen a model of a curious looking structure, which very naturally excites the enquiry of all beholders. Probably not one of all the thousands who will visit the Pavilion, will be able to form any idea of the use for which such a structure can be intended—so entirely unlike is it to everything of the kind which has preceded it. It is a model for a flour mill, and one which is so novel in construction, and at the same time so superior in its arrangements for the purpose intended, that a patent for the same has been applied for through the agency connected with this office.

Before making any further reference, it may be proper to state that the inventor, Mr. Derville Bequette has been for many years a practical miller and millwright, having superintended the construction of a large number of flour mills, both here and in the Atlantic States. The model there exhibited is the result of his long experience, both in running and building mills.

Every miller understands the necessity of strength, and proportion and arrangements of parts in the construction of a flour mill—strength to sustain vast weights of grain and capacity for taking up or resisting the jar of the machinery. A mill house should have six stories, in order to place the machinery properly, and so as to do the work to the best advantage. In calculating the area of these rooms for the most economical performance of work, where there is no necessity for largely economizing in ground room, it will be found that if we start with a ground floor of 110 feet square, the second story should be 90 feet square, the third 70, the fourth 50, the fifth 30, and the sixth or top story, 10 feet square—on the top of which latter should be placed a water tank.

The moving power is placed in the center of the first floor, directly connected with which is the lower main upright shaft, which tapers off with every story or connection, until it reaches the upper. The stones are placed in a circle on the second floor, and belted from the main drum on the upright shaft on the first floor, the shaft tapering off according to the decrease of power required to drive the lighter machinery above.

This construction and form of rooms admits of the most perfect arrangement of motive power, driving, and line shafting and machinery, for carrying on all the various operations of elevating, moving grain and flour from place to place and operating the stones. The dimensions given are for eight runs of stones; and the structure can be made larger or smaller, according to the greater or less number of stones which it is desired to operate.

By this arrangement the inventor is fully assured that the cost of constructing a mill may be reduced one-third over the best constructed mills now in use; while an equally large percentage of saving can be made in the daily expense of operating the same, by reducing the amount of friction and extra labor required by the present mode of construction and arrangement of machinery. If the anticipations of the inventor are realized, and we see no reason why they may not be, at least in a great degree, this improvement and saving in the cost of the manufacture of the great staple of life, may well be regarded as an important step in the material and mechanical progress of the day. We shall have something farther to say of the construction and operation of such a mill as here proposed, next week.

A THOUSAND STOLEN SHEEP were recovered recently by Sheriff Morse of Alameda, and the two thieves with them who thought they were safely concealed in the mountains.

## Opening of the Institute Fair.

The eighth Fair of the Mechanics' Institute of this city was inaugurated on Tuesday with appropriate ceremonies, and in the presence of a large assemblage of people.

The proceedings were opened by some well timed and exceedingly appropriate remarks by Mr. A. S. Hallidis, the President of the Institute. The opening address was pronounced by Hon. Milton S. Latham, and was a production in every way worthy of that distinguished citizen and orator. The exercises were charmed and enlivened by vocal music from a delegation of some 300 young ladies from the Denman school, accompanied by dulcet notes from Schmidt & Schlott's band, and rendered impressive by an eloquent and most appropriate invocation from Rev. John Hemphill.

The area of the Pavilion has been enlarged since the last exhibition by the addition of about 20,000 square feet on the ground floor—making, as it now stands, a total of 100,000 feet. The decorations are similar in character to those employed two years ago; but arranged in greater profusion and with more taste.

The present exhibition, though as yet but imperfectly presented, by reason of the tardiness of exhibitors, already shows a marked degree of progress in the industries of the Pacific coast. It partakes much more of an International character than any which preceded it, and is eminently suggestive of the new and important features in commerce which the settlement of the Pacific coast is so surely developing in our relations to the Orient. The Australian colonies are well represented, and so are China and Japan—particularly the latter. Mexico also puts in an appearance.

The Bay District Horticultural Society makes its first exhibit this year in connection with the Institute, and occupies the extensive addition which has been made to the south wing. This addition, which has not been floored over, and is roofed with canvass only, has been laid out as a charming garden, with walks, flower-beds, statuary, fountains and arbors. The display includes a wide and most interesting variety of plants, shrubs and trees, of tropical, semi-tropical and temperate climates—such a collection as could scarce anywhere else in the world be found outside of California. This department, though not yet quite ready, exhibits a high degree of taste, a large amount of labor, and cannot fail to prove one of the most interesting attractions of the fair.

The north wing of the building, which has been greatly enlarged, is, as on previous occasions, devoted to agriculture and machinery. Fred. Brown, formerly of the Central Pacific Railroad, is chief engineer in this department, with Mr. D. W. Macey as assistant.

Our Oriental neighbors, who have contributed so generously and added so much to the interest of the exhibition, have been allotted ample space, specially prepared in the northern addition to the Pavilion. The presence in this city of the chief of the Agricultural Department of Japan, a high dignitary at home, and an accomplished citizen of the Orient, accompanied by his suite, will add much to the interest and profit of this portion of the exhibition, and is rendering important assistance in the more perfect arrangement thereof. The Institute and the public is largely indebted to Mr. Horace D. Dunn in securing this important and instructive addition to the Fair.

The Pavilion is still a busy scene of preparation—many of the exhibitors, to their own loss, and to the annoyance and injustice to the Directors of this Institute, and the public generally, will be actively engaged for the entire balance of the week in preparing and arranging their several stands.

## The McGarrahan Claim.

A decision has been arrived at in regard to the McGarrahan and New Idria Mining Company case. The Secretary of the Interior has decided that neither party has a legal right to the disputed territory, but that the whole still remains with the government.

According to the despatches sent, a complete history of this case has been made, and a most searching investigation, whereby "new and material evidence was discovered."

The only trouble, but decidedly a most serious one, is that this only renews the dispute, and prepares it for trial before Congress, whither, it is said, it will go in all probability. This will be excellent for politicians, but, we fear, rather derogatory to our dignity as a people. However, we will not anticipate trouble, although previous action has been surrounded with as many suspicious circumstances.

## The Diamond Drill at Smartsville.

There being much enquiry as to the success of the diamond drill, we take pleasure in saying that it is doing well in J. P. Pierce's tunnel, at Smartsville, having made 24 feet headway during the last eight days, with a face of 6x9 ft. of hard rock, with one set of hands only. Three shifts, working by hand, formerly made only five feet per week in this tunnel. The machine accomplished 18 ft. by the use of 66 lbs. of giant powder with only 86 holes averaging 4½ ft. This is the work of the California improved machine, constructed under the superintendence of N. W. Robinson for Messrs. Severance and Holt. It is operated by H. Morse and Mr. Green. Familiarity with the operation of the drill enables the workmen to facilitate its operation and still greater speed may yet be attained. We are glad to note this evidence of its success.

## Laying Fumes of Giant Powder.

We last week published the specifications and claims for a method of laying the fumes of giant powder, recently invented by Dr. Blatchly, of this city. Since then we have had the following letter placed in our hands, which affords the most conclusive proof of the efficiency of this invention for the purpose intended.

DR. A. BLATCHLY.—Dear Sir:—The employment of a spray of water, after making a blast with giant powder for laying the fumes as suggested by you and which I learn has been secured by Letters Patent granted to you, has been most successfully used in the Daney mine, near Silver City, Nevada. The effect of the spray is to immediately disperse or rather precipitate the fumes which produce such injurious effects upon the men, and leave this mine in a perfectly healthy and agreeable condition, immediately after each blast.

To mine owners who employ giant, Hercules or other blasting powder yielding nitrous fumes I consider your invention invaluable. The workmen at the Daney mine were quitting work on account of the effect of the fumes until you suggested the spray, after which they went to work and have found no fault since. I would not work a mine without it.

Respectfully, etc., JOHN WHITE.

Formerly Supt. Daney Mine.

San Francisco, Aug. 2, 1871.

RICE CULTIVATION.—We have placed upon another page of the present issue an interesting article on the mode of Rice Culture and the preparation of the ground therefor, practiced in South Carolina. The article appeared originally in the California Rural Home Journal, a paper now discontinued. The article will be concluded next week, and will be found a most invaluable aid to those who may be thinking to engage in that business in California, where we have thousands of acres quite as well fitted for it as any in the Carolinas.



A New Work on Mining Engineering.

A book, named the *Explorers', Miners', and Metallurgists' Companion*, by J. S. Phillips, of this city, is now in press, and will be issued in six or eight weeks by Dewey & Co. It is intended as a practical guide (or companion) for miners in searching for, extracting and treating the ores of the precious metals. It is not intended as a theoretical treatise, but as a book for every day practice; and it will supply a need felt by every practical miner on the coast.

The first part of the book treats of Geology and Mineralogy, to which subjects 98 pages are devoted. The 2d part, on Exploration, extends to the 118th page. Part 3d, Assaying and Discrimination, extends to the 348th page. Part 4th, Mining and Engineering is already printed to the 432d page, and is half finished. Part 5th, Metallurgy, will extend the book to nearly 600 pages. It will thus be seen that the scope of the work is large. The minutiae of the various processes are carefully given. To compress all this into the book, only those processes, machines, etc., are given which are the best adapted to the wants of the Pacific coast.

From the proofs of the last few pages printed we give extracts so as to show the general style of the book, although these do not do the work full justice.

Arrangement of Mechanical Appliances.

Next to that of finding a good mine, there is nothing more difficult, in the whole field of mining, than the arrangement of the mechanical appliances in the best manner for the development and most profitable realization of whatever the veins may contain; and yet this part has been very often disregarded in planting the surface mechanisms, more particularly in the initial stages of operations, as the almost general rule has been to entirely destroy the early erections, to make room for several superseding powers which follow, from the hand "windlass" to the single or double-horse "whipsaw," to the "horse-whim," to the "steam-whim," and the "steam capstan." So, also, it as frequently happens that the smaller engines and pumps are followed by larger ones, for pumping, etc.; so that by the time the wrecks from alterations and substitutions are cleared away, and the consequent delays are paid for, little will be left for making profits, even from mines that would have been, with fair play, profitable.

Mills and stamps also are very often obtained too soon, before it is known if they will be really wanted; therefore, they are either not required, or are insufficient for the quantity of mineral to be treated; so that, *firstly*, the outlay could have been entirely saved; and, *lastly*, the double erection, with its consequent destructive waste, would have been likewise prevented, and so much larger profits given.

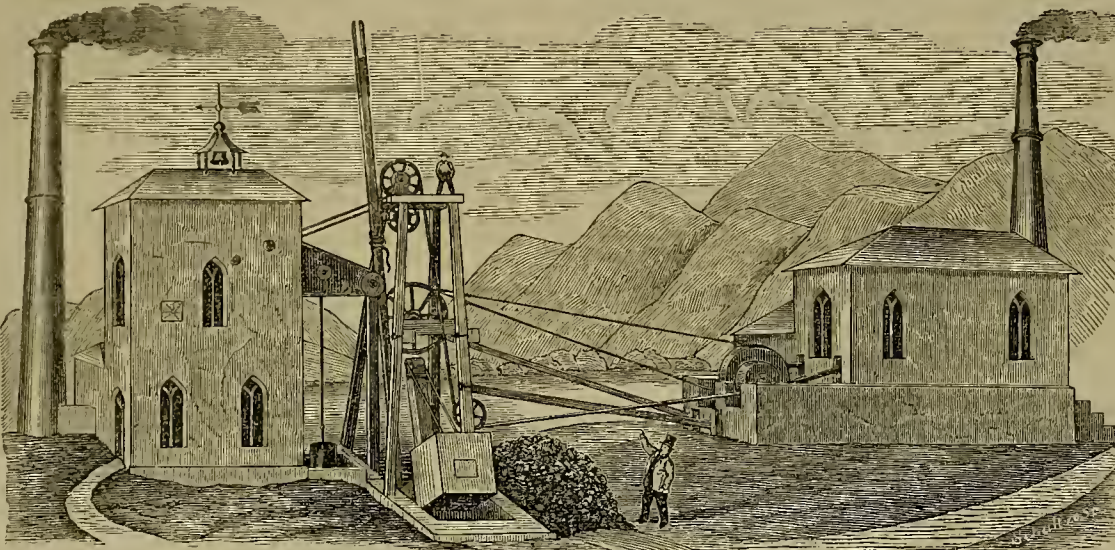
Therefore, all these things should be well considered about this time, and a provisional intention for the future should pervade the whole system of mechanisms and mining, instead of the most stolid disregard that is often shown towards all agreement with the subsequent erections and excavations that are naturally to follow.

The Best Pumping Machine.

"The Pacific slope is destined to become an extensive mining field; each year will deepen the developments of mineral veins, and the difficulties of pumping water and hoisting stuff therefrom will geometrically increase as depth is attained; so that many mines will waste their proceeds, and succumb for want of mechanical appliances for deep mining. It is therefore imperatively necessary that you should profit by the experience of others, and discard those non-expansive rotary engines,

that are entirely unsuited for pumping water from deep mines, from imperfection of structure and extravagance of fuel; or continuously recurring difficulties and accidents will have to be encountered, and these temporary machines discarded for the more appropriate, substantial, and permanent pumping engine, at a time, when, from excessive water and concomitant expense incurred by delay of operations under full staff, the cure of the evil will cost far more than the prevention.

It is not uncommon in mines from 1,500 to 2,500 feet deep, that pumps of from fifteen to twenty inches in diameter, varying from eight to ten feet stroke, are required, where the quantity of water is so excessive that a hindrance of twenty-four hours would be extremely ruinous to the financial balance; so that nothing but the most efficient arrangements can secure continued and successful labor, with economy. The experience of Cornwall in this department is more valuable than that of all the outside world. I will therefore endeavor to describe the "Cornish Pumping Engine," which I deem vastly superior to all others for pumping, and hope it may be adopted here as elsewhere, before it is too late; as it is equally well suited for all stages of mining, intervening between the discontinuance of the "horse-whim" harrel, and the deepest developments of man;



SURFACE MACHINERY ARRANGED FOR PUMPING, HOISTING, AND CAPSTAN WORKS.

saving, as it does in every way, from its admirable adaptation to the work, not only in fuel, and in wear and tear, but also by less breakages, hindrances, and consequent loss of mines. This engine, contrived especially for pumping water from deep mines, by several of the best engineers in the world, is exceedingly well adapted for the purpose; in fact, it is for the miner what the direct-acting steam hammer is for the blacksmith, and performs with ease and precision duties that could not be otherwise accomplished; and therefore embodies many peculiarities." \* \* \*

The Steam Capstan.

"The steam capstan is almost a necessity for deep and extensive mines, as the hand capstan is not only too slow in action, but also too expensive, as it requires so many men to work it, when heavy weights have to be lowered or elevated great distances.

It has been the practice to employ an especial engine for this purpose; but the arrangement shown in the cut, for the surface mechanisms, simplifies and cheapens the initial stages of mining, so that one thing shall follow another, without destroying the old arrangement of parts to make room for the new; and, in this connection, the double cylinder, expansive action hoisting engine performs both duties, by merely disconnecting, by an easy arrangement of motion, the hoisting or capstan gear, as required. The other peculiarities will be described in the chapter on "Deep Mining, as Facilitated by such Machines." The steam capstan is shown, in the act of hoisting a piece of main rod, with the side "strapping" or connecting plates attached, for greater facility in connection, when lowered to its place under the other rods.

You will notice that peculiarity of the shears, where the sheave is so fixed that the rope works outside, instead of underneath in the usual manner, by which the rod may be hoisted to the very lashing, so that a much less height of shears will suffice.

In this arrangement, the pumping engine and the hoisting engine are at right angles with the vein; the former is on the foot-wall side, and the balance beam is towards the vein, and intentionally placed in the direction where, in the future working, a pumping rod may be required."

Queries for Mechanics.

EDITOR'S PRESS:—Perhaps the following queries (if you see fit to publish them) may set many people to thinking. Perhaps they may do some good, perhaps not a whit:

Why does Mr. King and nine-tenths of all the screw-plate makers make the opening to receive the die at the same side or end of the plate that the die is used? thereby rendering the tool very troublesome after it has been used a little while, and the dies soon become loose and then tear and split the threads more or less.

Why does Mr. Lecount, in making his patent latho chucks, have 12 different-sized heads to the screws of 12 different-sized chucks? rendering it necessary to use a monkey-wrench (which can never be found around a lathe); or if a wrench is used with many holes, the piece to be turned has to

proper fluxes and melted with the usual precautions. The resulting hutton of lead is cupelled, correction made for silver in the litharge, and the weight of fine metal noted. The silver is then dissolved out with nitric acid and the gold weighed. Suppose the result to be as follows:

Weight of alloy of gold and silver.....	0.136
Weight of gold.....	0.026
Weight of silver.....	0.110

As each milligramme is equal to one ounce Troy per ton, the ore is found to contain per ton:

Gold..... 26 ounces  
Silver..... 110 ounces  
These results multiplied by the value of gold and silver give the value of the ore assayed.

The full unit is too much for the scorification assay. In this case it will be found convenient to employ  $\frac{1}{4}$  of the unit or 7.2915 grammes. A weight may be made equal to the above and kept in the balance case for use, by which the frequent handling of small weights will be avoided.

Two scorifiers are prepared with the above weight of ore in each. Test lead is added, and both are placed in the muffle together. When properly scorified, they are poured out, the slag detached in the usual manner, and the lead buttons cupelled. The resulting beads of fine metal are placed in separate pans of the balance. If no difference is found in the weights, both are placed in one pan, and their weight in milligrammes ascertained and noted. Should their weights not agree, a third scorification must be made, the result of which must be the same as one of the first. The corrected buttons are treated with nitric acid, pure silver being previously added, if necessary, and the weight of the gold noted as in the first example. As only one-half of the unit has been used, multiply all results by two before calculating value.

In computing the value of ores, I have found the following table to be a great convenience. Its use is simple; all multiplications are avoided. By its assistance the value of any number of ounces of gold or silver may readily be found.

In the examples given above, the table may be used as follows:

Twenty ounces of gold would be the same as two ounces with the decimal point moved one place to the right.

20 ounces gold.....	\$413.43.6
6 ounces gold.....	124.03.0
26 ounces gold.....	\$537.46.6

In the case of silver the result is obtained in the same manner from the silver column, thus

100 ozs. silver (decimal 2 places right).....	\$129.22.2
10 ozs. silver (decimal 1 place right).....	12.92.9
111 ozs. silver.....	\$142.22.1

The value of the ore is thus found to be per ton:

Gold 26 ozs. Troy.....	\$537.46
Silver 110 ozs. Troy.....	142.22
	\$679.68

The decimals of an ounce may be computed with equal facility. Let it be required to calculate the value of 22.321 ounces Troy of pure gold.

	GOLD.	SILVER.
20 ozs.....	\$413.43.6	
2 ozs.....	41.34.3	
0.3 ozs.....	6.20.1	
0.02 ozs.....	0.41.3	
0.001 ozs.....	0.02.0	
22.321.....	\$461.41.3	

Of course the silver column may be used in the same way.

The planting of rice in Louisiana has fallen off so that a crop of 80,000 barrels, or 16,000,000 pounds is considered an outside estimate.

Convenient Table for Gold and Silver Assays.

BY HENRY G. HANKS.

The number of Troy ounces in 2,000 pounds avoirdupois is 29,166. In the assay of gold and silver ores, the returns of which are always given in Troy ounces, I find it convenient to employ the unit of 29.164 grammes as the basis of all assays.

This method was first proposed, I believe, by Dr. Chandler, of New York, and is now generally adopted by American assayers.

When this unit is employed, it is evident that each milligramme of fine metal obtained is proportional to one Troy ounce in the ton of 2,000 pounds. The following example will make this perfectly clear.

Let 29.166 grammes of pulverized ore be placed in a crucible with litharge and the



## DOMESTIC ECONOMY.

### How to Use Your Currants.

"Daisy Eyebright," in the *Country Gentleman* gives the following directions for the various methods of utilizing this healthful and delicious berry. The suggestions are reliable and seasonable:

**CURRENT JELLY.**—Gather the currants when fully ripe; wash thoroughly clean from soil; squeeze the juice through a flannel bag, having first poured a teacupful of boiling water upon ten or twelve pounds of fruit. Measure the juice, and to every pint of it add one pound of the best lump sugar. Boil together twenty-five to thirty minutes, skimming off all the froth that rises; (this can go into the vinegar jug, that should sit behind the stove, ready to take in all such things.) When perfectly clear, strain through a jelly strainer or sieve, into cups or tumblers. When it is cold and solid, cut round pieces of white paper, dip them in alcohol and lay over the jelly; then paste stiff brown paper all over the tops of the dishes, and label them, with the date. There is no need of removing the stems for jelly, if the currants are well washed.

[Another correspondent of the same paper says: After washing, put them in the preserving kettle and cook until quite soft, then strain while hot. Measure your juice, and put it back on the fire and before adding the sugar allow it to boil ten minutes, and skim thoroughly.—ED. PRESS.]

**CURRENT WINE.**—Take fully ripe berries on the stems; put them on the fire, and let them become heated through; then press out the juice through a flannel bag. If a quantity of fruit is to be prepared, wash the clothes wringer thoroughly, and put the bag containing a portion of currants, through its rollers. To every gallon of juice add two quarts of hot water and four pounds of white sugar. Mix all together; put into a jug and tie millinet or lace over the mouth to keep out insects. Set in a warm place to ferment. In a month or six weeks the wine can be corked up. Let it remain in the jug, in the cellar, until April, then pour off the clear liquor, and bottle tightly.

**CURRENT VINEGAR.**—A good article of vinegar can be made from the mash that is left from jelly and wine. Pour boiling water over it but not too much, let it be quite colored with the juice; then to every gallon of it add one quart of molasses; set in the sun to ferment; and in three months, if not sooner, you will have a delicious vinegar.

**SPICED CURRANTS.**—These make a relishing accompaniment to roast meats, etc. Take the stems from five pounds of currants; add to them four pounds of brown sugar, three tablespoonfuls of ground cinnamon, two tablespoonfuls of ground cloves and a pinch of salt; and one pint of vinegar. Boil in a porcelain kettle for one hour; keep in jars, tightly covered.

**CURRENT PRESERVES OR JAM.**—Take the currants from the stems, and to every pound of them put three-quarters of a pound of white sugar; mash them up with a pestle, and boil for half an hour, skimming well. This is a good substitute for cranberry sauce with poultry.

**DRIED CURRANTS.**—Take seven pounds of currants, one pound of sugar, and cook till completely broken up; strain through a colander; boil the juice down to a thick syrup; add the currants that were left in the colander; cook as thick as possible without burning; spread on platters to dry in the hot sun, or an oven not too hot to dry slowly; one day is usually enough for one side; cut up in small squares; turn and dry on the other side. It is deliciously flavored and agreeable to the mouth of a fevered patient. Lay a small bit on the tongue and let it dissolve, or dissolve it in cold water for a refreshing drink.

**ICED CURRANTS.**—Select large, full bunches of currants; dip them in the white of an egg, and then roll in powdered sugar. A very handsome dish for dessert or supper.

**CURRENT ICE.**—Squeeze out two quarts of currant juice, add to it one pint of cold water and three pounds of white sugar. Put into the freezer and beat into it the whites of three eggs whipped to a stiff froth; freeze the mixture. This makes an elegant dish for dessert, as it freezes in a pink colored foam, which is very delicious.

**CURRENT SYRUP.**—Take three quarts of currant juice and three pounds of white

sugar; boil for twenty minutes, and bottle while hot, sealing the corks tightly with a wax made of rosin and tallow. This affords a pleasing beverage when mixed with ice water, and is valuable in the sick room.

**PRESERVING CURRANTS WHOLE.**—To preserve currants whole, wash them, then pick them carefully from the stems; add three-quarters of a pound of sugar to every pound of currants, and boil quarter of an hour; these must be put in air-tight jars, and they make a delightful acid preserve. For currant jam take a pound of sugar to a pound of currants, and boil half an hour.

### Keeping Oysters Fresh.

To keep oysters alive and fresh in their shells—Put them in a clean pan, cover them with pure water moderately salted, and changed every day. Keep them in a cool place.

We are in doubt as to its being necessary that an oyster should be constantly covered with water, to be kept alive and fresh. Some three years ago we spent a couple of weeks on the "South Shore" of Rhode Island, where, by the way, may be found—in limited quantity, however—some of the best oysters in the world. While there, and during the winter months, after the "oyster season" had long passed, we were invited to an oyster supper where the fresh bivalves were served up direct from their shells. Surprised at their delicious freshness, we enquired of our friend how he was able to keep them so fresh and sweet. He informed us that they were taken from the banks at the time of their best condition, and immediately "packed" in a cool, moist cellar, free from frost in winter. At intervals—we have forgotten how frequently—they were sprinkled with water in which Indian meal had been soaked, some of the meal still remaining in the water. A sufficient quantity of this solution was sprinkled over the pile, to allow of its reaching every individual. The bivalves would manifest their appreciation of this pluvial favor by instantly opening their shells, evidently to receive portions of the same within. This fact being made sufficiently evident by the crackling noise produced by the slight movement of the shells working and grating against each other. We were assured by our friend that he was enabled to keep oysters, in this manner, through the entire winter, with as little loss and trouble as so many potatoes.

### Useful Herbs.

There should be a good collection of useful herbs in every garden, or in some other place adjoining the homestead—such as are needed about the kitchen, in the nursery or in the sick room. A small bed of each kind will supply the requirements of a large family. The following are some of the most desirable:

**Balm**—a hardy perennial plant, the leaves of which have a lemon-like odor and an agreeable aromatic taste. They are used for flavoring dishes. A solution of them is beneficial in diseases of the lungs. **Basil**—the leaves when bruised have the odor and flavor of cloves, and are used for seasoning. **Caraway**—a hardy perennial plant, valuable for its seeds, which are used in confectionery and also in distillation. **Coriander**—a hardy annual cultivated for its seeds, which are used by confectioners, druggists and distillers. The young leaves are used in soups and salads. **Lavender**—a hardy, shrubby plant, of which there are several varieties. It is sometimes used for seasoning, but is more esteemed for making the distilled water which bears its name. **Common marjoram**—a shrubby perennial plant, which may be raised from seeds, but is generally propagated by dividing the roots either in the spring or autumn. The young shoots, cut at the time of flowering and dried in the shade, are used for seasoning. The plant is highly aromatic. **Sweet marjoram** is raised from seeds sown annually in the autumn. This plant is highly aromatic, and is much used both in the green and dry state for flavoring soups, etc. **Rosemary** is a half hardy, half shrubby plant, which requires a light, dry soil and sheltered situation. In addition to these we may enumerate sage, thyme, tansy, etc. One or more hop vines should also be found in every garden.

### Domestic Receipts.

**BROILED LOBSTER.**—After having boiled the lobster, split it from head to tail, lay it open; put pieces of butter over the meat; sprinkle it with pepper, and set the shells on a gridiron over the bright coals until nicely broiled through. Serve in the shells.

**TO ROAST A LOBSTER.**—Parboil a lobster; take it out of the water; rub it over with butter, and put it in a dish before the fire, baste it well with butter until it has a fine froth, and serve.

**LOBSTER PIE.**—Pick all of the meat out of the lobster, spawn and green; cut all up fine in a chopping tray, or beat it in a mortar; season it with pepper, salt, and vinegar; melt the butter; stir all together with a cupful of bread crumbs; put puff paste around the pie-plate; put in the meat; cover it over with paste; make a hole in the top; bake it in a slow oven.

**MINCED LOBSTER.**—Pick the meat from a fresh lobster; mince it very well; and put it into a stew-pan with a seasoning of pepper and salt, a little cayenne, a wine glass of white wine, and one of vinegar. Set it over a clear fire to stew for about ten minutes; melt two ounces of butter, with an anchovy, and the yolks of two well-beaten eggs; stir it into the lobster, and thicken the whole with bread crumbs; place it in a dish, and garnish with the claws and double parsley.

**LOBSTER SOUP.**—Pick the meat from a lobster already boiled, from the shell, and cut it into small pieces; roll the biscuits to a powder; put a quart of milk and a quart of water into a tea-kettle boiler, with a tablespoonful of salt and a teaspoonful of pepper. When the milk and water are boiling hot, add the lobster and pounded biscuit mixed to the soup with a quarter of a pound of fresh butter; let it boil closely covered for half an hour; pour it into a tureen, and serve.

**FAMILY PUDDING.**—One pound of flour, one pound of suet, chopped fine, three-quarters of a pound of sugar, one pound each of carrots and potatoes, well boiled and mashed together, half a pound of raisins, three-quarters of a pound of bread crumbs; spice, flavoring, and peel optional. Mix the whole together with a little water. It must not be too stiff, and certainly not too moist. Rub a basin well with drippings, and boil for three hours.

**TO BOIL HAM.**—The ham should be nicely washed in warm water and put into cold water. Allow a quarter of an hour to a pound of ham. When sufficiently boiled, remove it from the water, and place it in a baking-pan; remove the rind, and roast or bake one hour in a quick oven, dredging it frequently with a mixture of finely-powdered and sifted bread crumbs and flour, in the proportion of one part of flour to three of bread crumbs. If not scorched it will look finely upon the table. The flour prevents the crust or crumbs from scattering over the ham when cut.

### Mechanical Hints.

**COATING FOR BRICK AND OTHER OUTSIDE WALLS.**—The following coating for rough brick walls is used for painting lighthouses, and it effectually prevents moisture from striking through: Take of fresh Rosendale cement three parts, and of clean, fine sand one part; mix with fresh water thoroughly. This gives a gray or granite color, dark or light, according to the color of the cement.

If brick color is desired, add enough Venetian red to the mixture to produce the color. If a very light color is desired, lime may be used with the cement and sand. Care must be taken to have all the ingredients well mixed together.

In applying the wash the wall must be wet with clean fresh water; then follow immediately with the cement wash. This prevents the bricks from absorbing the water from the wash too rapidly, and gives time for the cement to set. The wash must be well stirred during the application. The mixture is to be made as thick as can be applied conveniently with a whitewash brush.

It is admirably suited for brickwork, fences, etc., but it cannot be used to advantage over paint or whitewash.

**PAINT FOR SHINGLES.**—Slake stone lime by putting it into a tub to keep in the steam. When slacked, pass through a fine sieve, and to each six quarts of it add one quart of rock salt and one gallon of water; boil and skim. To each five gallons of this add pulverized alum, one pound; copperas, one-half pound; potash, one-half pound; hard-wood ashes, sifted, four pounds. Apply with whitewash brush.

## LIFE THOUGHTS.

FEAR anticipates and magnifies future evils.

AMONG the hase, merit begets envy; among the noble, emulation.

POLITENESS is the just medium between ceremony and rudeness.

A MAN of sense may disdain an artifice as a rich man may wear a plain coat.

It too often happens that experience, like the stern light of a ship, illumines only the path we have traveled.

THERE is frozen music in many a heart that the beams of encouragement would melt into glorious song.

Few persons have sufficient wisdom to prefer censure, which is useful to them, to praise, which deceives them.

WE may not like all the company we meet with, but if we are brought in contact with it, we must make the best of it.

THE MANNERS which are neglected as small things are often those which decide men for or against us.

THE SCOTCH have a maxim to this effect: It is best to let a sleeping dog lie—especially if his fangs are sharp and he knows how to use them.

HE that will do no good offices after a disappointment must stand still and do just nothing at all. The plow goes on after a barren year; and while the ashes are yet warm, we raise a new house upon the ruins of a former.—*Seneca*.

IN vain do they talk of happiness who neve subdued an impulse in obedience to a principal. He who never sacrificed a present to a future good, or a personal to a general one, can speak of happiness only as the blind do of colors.

CO-OPERATION is the key to the wealth of the earth. Justly, wisely used, it will give to the laborer what should be his, the profits of his own earnings.

### Cast a Line for Yourself.

A young man, poor and dejected, stood watching some anglers on the banks of a stream. At length, approaching a basket well filled with fine fish, he sighed, and said:

"If I now had these I would be happy. I could sell them at a fair price, and buy me food and comfortable lodging."

"I will give you a good fish," said the owner, who chanced to overhear his words, "if you will do me a trifling favor."

"And what is that?" asked the other, eagerly.

"Only tend this line till I come back; I wish to go on a short errand."

The proposal was eagerly accepted. The old fisherman was gone so long that the young man began to be impatient. Meanwhile, however, the hungry fish snapped greedily at the baited hook, and the young man lost his depression in the excitement of pulling them in, and when the owner of the line returned he had caught a large number. Counting out from them as many as were in the basket and presenting them to the young man, the old fisherman said:

"I fulfill my promise for the fish you have caught to teach you that whenever you see others earning what you need, to waste no time in fruitless wishes, but to cast a line for yourself."

**SILENT INFLUENCE.**—If a sheet of paper on which a key has been laid he exposed for some minutes in the sunshine, and then instantaneously viewed in the dark, the key will be visible. Let this paper be laid aside for many months where nothing can disturb it, and then in darkness laid on a plate of hot metal, the spectre of the key will appear. This is equally true of our minds. Every man we meet, every book we read, every picture or landscape we see, every word or tone we hear, leaves its image on our brain. These, which under ordinary circumstances, are invisible, never fade, but in the intense light of cerebral excitement, start into sight on the application of heat. It is thus with all the influences to which we are subjected.

**FORTITUDE.**—In the lives of all of us there are hours of anxiety, disappointment, pain, and vexation, seasons of trial that are to be met only with stubborn patience. Greatness of soul is tested by the serenity with which these inevitable ills are born and finally overcome. The little mind will fret and chafe and fume over little things, even as the petty stream over its narrow, pebbly bed, while the deep, strong, mighty river moves swiftly and silently over the boulders that lie at its bottom.



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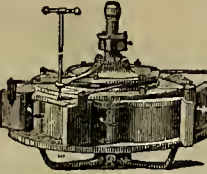
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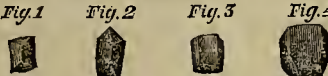
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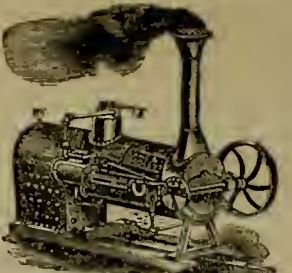
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4:45 P.M.	8:40 A.M.	Oakland.....	5:15 P.M.	11:30 P.M.
5:30 P.M.	7:30 A.M.	San Jose.....	5:30 P.M.	12:15 P.M.
7:30 P.M.	12:21 P.M.	Stockton.....	1:25 P.M.	8:35 P.M.
9:35 P.M.	2:10 P.M.	Sacramento.....	11:45 A.M.	7:00 A.M.
	4:10 P.M.	Marysville.....	3:10 A.M.	
	7:50 P.M.	Sesma.....	5:40 A.M.	
	2:30 P.M.	Sacramento.....	11:45 A.M.	
	5:25 P.M.	Colfax.....	8:45 A.M.	
	1:15 A.M.	Reeno.....	1:00 A.M.	
	9:10 A.M.	Winnemucca.....	4:05 P.M.	
	12:00 P.M.	Battle Mountain.....	1:25 P.M.	
	4:40 P.M.	Elko.....	8:45 A.M.	
	6:30 A.M.	Ogden.....	5:20 P.M.	


ESTWARD WESTWARD

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OAKLAND BRANCH.—LEAVE SAN FRANCISCO, \*6:50, 8:00, 9:10, 10:20 and 11:10 a. m. 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30 and \*11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
LEAVE BROOKLYN, \*5:15, \*6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 10:10 p. m.  
LEAVE OAKLAND, \*5:25, \*6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.  
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:10, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:20 and 3:30 to Fruit Vale only).  
LEAVE HAYWARD, \*4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
LEAVE FRUIT VALE, \*5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.  
\*Trains do not run Sundays.  
T. H. GOODMAN, A. N. TOWNE,  
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

REMOVAL  
—OF—  
CENTRAL PACIFIC RAILROAD  
Ticket and Freight Offices  
—FROM—  
422 CALIFORNIA STREET, TO SOUTH-  
WEST CORNER OF  
Market and New Montgomery Streets,  
AUGUST 5TH, 1871.  
jul29-4w

UNION PACIFIC RAILROAD.

Running from Ogden, Utah, to Omaha, Nebraska—over  
one thousand miles. Making  
DIRECT CONNECTIONS  
AT OGDEN with the CENTRAL PACIFIC R. R. (from San  
Francisco); also with the Utah Central R. R. to Salt Lake  
City.  
AT CHEYENNE with the DENVER PACIFIC R. R., with  
connection at Denver City with the Kansas Pacific R. R. to  
St. Louis and Southern and Atlantic Cities.  
AT OMAHA, for Chicago, Eastern and other cities, with  
the Chicago and Northwestern; Chicago, Rock Island and  
Pacific; Burlington and Missouri River; St. Joseph and  
Council Bluffs Railroads.  
EXPRESS TRAINS RUN DAILY.—The U. P. R. use  
the Westinghouse patent air brake; Miller's patent trussed  
platform and elastic car-coupler; and the most approved  
construction of cars for the comfort and safety of passen-  
gers.  
PULLMAN'S MOST MAGNIFICENT SILVER PALACE  
Sleeping Cars attached to express trains.  
T. L. KIMBALL,  
General Passenger Agent, Omaha.



PAIN KILLER  
PROP.  
PERRY, DAVIS & SON, PROVIDENCE, R.I.

1840 1870

CHOLERA.  
HOW TO CURE IT.

At the commencement of the Diarrhea, which always  
precedes an attack of the Cholera, take a teaspoonful of the  
Pain Killer in sugar and water (hot, if convenient), and  
then bathe freely the stomach and bowels with the Pain  
Killer clear. Should the diarrhea or cramps continue, re-  
peat the dose every ten or fifteen minutes until the patient  
is relieved. In extreme cases, two or more teaspoonfuls  
may be given at a dose.  
The Pain Killer, as an internal remedy, has no equal. In  
cases of Cholera, Summer Complaints, Dyspepsia, Dysin-  
tery, Asthma, it cures in one night, by taking it internally,  
and bathing with it freely. Its action is like magic, when  
externally applied to Old Sores, Burns, Scalds, and Sprains.  
For Stomachache and Toothache, don't fail to try it. In  
short, it is PAIN KILLER.  
Directions accompany each bottle.  
The Pain Killer is sold by all dealers in Medicines.  
Prices, 25 cents, 50 cents and \$1 per bottle.



## Editorial Notes Eastward.

Last No.

SAN FRANCISCO, June 21st.

My last notes, dated April 15th, mentioned resting a time in Omaha. I have since completed my journey, stopping briefly at Omaha, Chicago, Washington, Philadelphia, New York; visited my "old home" with joyous heart, and returned refreshed rather than fatigued.

On the Union Pacific R. R.

The trains are equipped with Miller's patent truss platforms and couplings, (recently illustrated in the PRESS), by means of which the principal danger of the cars, "telescoping into one another," in case of accident, is avoided. The coupling is self-acting, and the buffers so elastic that the cars are always started and stopped in a manner, agreeable to the necks of old R. R. passengers—with a degree of gentleness worthy of a vote of thanks to Gen. Miller for inventing the improvement and the managers of the U. P. for adopting it.

This R. R. Co. also use the Westinghouse atmospheric brake, operated instantly upon every car by the engineer. A cylinder about 10 inches diameter and 30 inches long underneath the center of each car, operates the brakes at each end by the force of compressed air conducted to it from the compressing pump or engine, operated by steam, on the side of the locomotive. Elastic hose with patent couplings conducts the air between the cars to stationary iron pipes connected with the cylinders under the cars.

We found the U. P. R. R. entirely in good running order. It is the longest road in the U. S. owned by one corporation, and its intelligent management seems to be a fortunate one for owners, passengers and the communities established and really accommodated along its route—without extravagance, without niggardness but with reason and fairness throughout.

The completion of the immense iron bridge over the Missouri river at Omaha, now building by the company at an immense outlay, will in future be looked upon as a fitting finishing stroke of one of the grandest of railroad enterprises during the 19th century. It will save much time and annoyance to through passengers, who must now be transported by ferry boat.

The Pacific Pullman Palace Car Co.

Run their superb sleeping coaches between Omaha and Ogden, and from Cheyenne over the Denver Pacific to Denver, Colorado, and from Denver over the Kansas Pacific to St. Louis, Mo. I was ticketed in the Palmyra, a "gentle sleeper" by night and superb saloon by day. We regard the "Pullman" decidedly the most superior cars running, and the best supplied and cared for by this company, under the superintendency of Mr. Bennett, of Omaha. Mr. B. is popularly known by many of our Californians for his special kindnesses to several excursion parties and general civility to Pacific coast passengers.

Chicago, Quincy and Burlington and Missouri River R. R.

On this line from Omaha to Chicago we were favored with one of the best accommodations yet provided for R. R. travelers, i. e., first-rate hotel dining cars—in which one may eat with the utmost leisure and satisfaction. At Burlington we had the pleasure of comfortably eating our dinner over the "Father of Waters" while viewing the city and overlooking the fine scenery along the river above and below.

On this route the road has lately been supplied with iron heavier than that of other roads. A double track spans a greater portion of the way. It is heavily ballasted and its trains run over a level line with great speed and safety. The rolling stock is excellent and provided with the latest improvements including the patent platform and atmospheric brake mentioned above. From my own experience and the testimony of others, I believe this the best of the four lines eastward from Omaha. Out of Chicago we took the

Fort Wayne and Pennsylvania Central R. R.

To Pittsburgh and Philadelphia, and the N. J. Central to N. Y. The scenery over the Alleghenies, especially in June, was beautiful, and the passage through satisfactory and commendable in the highest degree.

Having been longer in writing than in riding this trip, I will now "switch off" these "notes."

## Special to Inventors.

All inventors who secure valuable patents through the SCIENTIFIC PRESS PATENT AGENCY are specially favored with a liberal notice of the merits of their inventions in the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS—two first-class weeklies, the most widely circulated of any on this coast, reaching the very best classes for the benefit of our ingenious citizens. In many cases we know that such notices have been worth more to patentees than the whole cost of obtaining patents. While we give the most able and experienced counsel to inventors, our terms are more favorable to Pacific Coast inventors than those of any other Agency in the United States, besides the benefit derived from having their inventions set forth rightly in the start by gratuitous publication in more than one highly reputable journal.

## TRADE MARK PATENTS

—FOR—

Merchants and Manufacturers

Can now be secured to advantage under the NEW LAW

In the United States. Parties interested will be furnished with all information desired, and have their application intelligently prepared and promptly forwarded to the Patent Office, and their patents secured in good time, by DEWEY & CO., U. S. and Foreign Patent Agents, No. 414 Clay street, S. F.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper or blank slip, WITHOUT the NAME and RESIDENCE of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

WOODLAND, July 14, 1871.

DEWEY & Co.—Gents: I received the patent paper on my improved wagon all right, and I return thanks for the promptness with which you pushed it through.

Respectfully, C. ELLIOTT.

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new Strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 16 Dearborn street, Chicago, Ill. 23v1-12mbp

CAMERON'S  
STEAM PUMPS.PIORRING'S  
Engine Regulators.GIFFARD'S  
INJECTORS.BARTOL'S  
STEAM TRAP.  
Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.

OUR JOURNAL AND THE FAIR.—We shall not issue a daily edition of the PRESS in the Mechanics' Fair this year (as formerly), but shall devote a greater amount of labor upon our weekly issues, to render their columns more replete with interesting and reliable reports of the most worthy and important exhibits. Thus having more time to devote to our regular issues, we hope to present more valuable and readable reports than ever before. Exhibitors and others who have information of interest and importance to the public, are invited to furnish us with the facts as early as possible.

VISITORS AND EXHIBITORS at the Mechanics' Industrial and Horticultural Fair, in this city, are invited to call and subscribe for the PRESS. We shall give interesting and impartial reports, worth reading and preserving.

Complete Volumes of the Scientific Press from January, 1874, can be had at this office at \$3 per volume. Bound in cloth, \$5. A limited number only on hand.

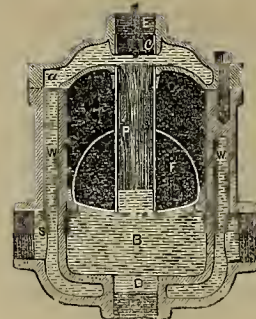
FOR AN IRRITATED THROAT, COUGH OR COLD, "Brown's Bronchial Troches" are offered with the fullest confidence in their efficacy. They have been thoroughly tested, and maintain the good reputation they have justly acquired. As there are imitations, be sure to OBTAIN the genuine.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at John I. Tay's, Broadway, Oakland. apl-hp-tf

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mbp

C. MULLER, No. 205 Montgomery street, has just received a splendid new assortment of eye glasses that he will sell at greatly reduced prices. Remember the place, 205 Montgomery street.

COPIES WANTED OF THE SCIENTIFIC PRESS OF JANUARY 7, 1871. We will pay 25 cents per copy, at this office, and also feel obliged to the sender.

CRAIG & BREVOORT'S  
Patent Condenser for Steam  
PUMPS, &c.

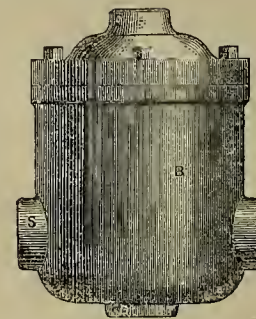
NO. 1.]

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

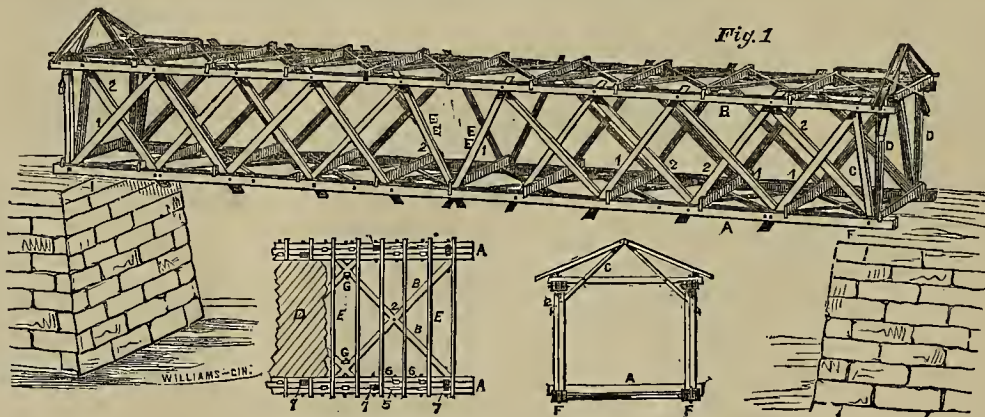
The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere, when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. Address: H. L. BREVOORT, 6v23eowly 128 Broadway, New York City.

## PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON  
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.  
The timber used is placed so directly in the line of strain, that less material is required to support the same load.  
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.  
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.  
Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.  
F. MALOON, Secretary. W. H. GORRILL, President.



## Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

### Eagle Quicksilver Mining Company—Location of mines, Eagle Mining District, Santa Barbara County, California.

Notice.—There are delinquent upon the shares of the following named persons, on account of assessment levied on the 14th day of June, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Benton, Dr H A.....	unissued	1	\$20 00
Bush, A T.....	unissued	1	20 00
Miller, John.....	unissued	1	20 00
Smith, Alfred.....	unissued	1	20 00
Townsend, J B.....	unissued	2	40 00

And in accordance with law, and the articles of agreement of said company, and an order of the Board of Trustees thereof, made on the 14th day of June, 1871, the whole or such undivided part of each delinquent share in said mines as may be necessary to pay said assessment upon each, will be sold to the highest bidder at public auction, for cash, in United States gold coin, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of August, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. au12-1w

### Highland Silver Mining Company—Location of works, Railroad District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 13th day of July, 1871, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of August, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. July15-1d

### Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of August, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of September, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

K. H. COLEMAN, Secretary.  
Office, 220 Clay street, San Francisco. au12-1w

### Mina Rica Mining Company—Location of works, Auburn District, Placer County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of August, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of September, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.  
Office, Room No. 2, third floor, No. 418 California street, San Francisco, California. au12-2w

### Nevada Land and Mining Company—Location of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of July, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of September, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California. July12-5w

### North America Consolidated Mining Company—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of September, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. au12-5d

### Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of August, 1871, an assessment of seventy-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of September, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

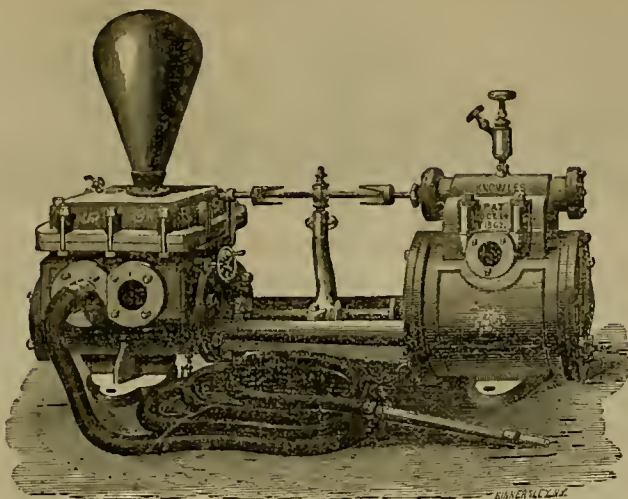
R. G. BRUSH, Secretary.  
Office, 314 California street, San Francisco. au12-4w

### Taylor Mill and Mining Company—Location of works, Georgetown District, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of July, 1871, an assessment of ten (10) cents per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 14th day of September, 1871, at the hour of 2 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

SAM'L S. MURPHY, Secretary.  
Office, 529 Montgomery street, over Sather & Co's Bank, San Francisco, Cal. July15-1d

## KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, CAL., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly, A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, OREGON, April 22, 1871.

Mrs. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.

Yours respectfully, G. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly, C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.

Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly, GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, NEW YORK, June 3, 1871.

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully, WM. W. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDAUQA, Pa., June 1, 1871.

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc., EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., HELLERSTOWN, Northampton County, Pa., May 26, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the quality of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.

Yours very respectfully, G. W. WHITAKER, President and Superintendent.

OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly, P. SAULT, Superintendent.

CENTRAL AND WESTERN PACIFIC AND CAL. AND OREGON RAILROADS, OFFICE Supt. W. M. P. & M., SACRAMENTO, CAL., July 8, 1870.

A. L. FISH, Esq., San Francisco—Dear Sir: Your favor of the 2d inst. is received, asking my opinion in regard to the Knowles Steam Pump, and would say I have used the Knowles Steam Pump for several years, and consider them for all purposes the best steam pump in use. Yours truly, E. F. PERKINS, Supt. M. P. & M.

OFFICE OF RED BLUFF WATER WORKS, Red Bluff, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to all you have claimed for them, and I will add that I think they have no equal. Yours, etc., JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand. 24x22-eow

## Jeinsen Lubricator Company—Notice is

hereby given, that at a meeting of the Board of Trustees of said Company, held on the 1st day of August, 1871, an assessment of Fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 128 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 7th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees. CALEB T. FAY, Secretary.  
Office, Room No. 7, No. 428 California street. au12d

## Pinto Mining Company, Location of Works, Silverado, Pinto Mining District, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied May 24th, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Leopold Jacobl.....	1	60	\$ 7 50
Leopold Jacobl.....	from 2 to 32	50	193 75
A H Ward, Jr.....	111	805	100 62
Henry G Langley.....	171	1 610	201 25
Robert E Johnson.....	213	321 3/4	40 21
Erasmus Olsen.....	212	10,000	1,250 00
D B Arrowsmith.....	not issued	1,610	201 25

And in accordance with law, and an order of the Board of Trustees, made on the 24th day of May, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the 17th day of July, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.  
Office, 426 Montgomery street, San Francisco. 26x22-3t

## PINTO MINING COMPANY.—The above sale is postponed until Wednesday, the 16th day of August, 1871, at the same time and place. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

## Tecumseh Gold, Silver and Copper Mining Company—Location of Works, Gopher District, Calaveras county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 28th day of July, 1871, an assessment of five dollars (\$5) per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, S. J. Hermann, at the office of the company, 516 Kearny street. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. J. HERMANN, Secretary.  
Office, 516 Kearny street, San Francisco. au12d

## The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,  
MINING,  
And BLASTING  
POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported d into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST ELASTINE POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16x20-3m JOHN F. LOHSE, Secretary.

## OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

ash Capital, . . . . . \$300,000

OLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20x17



E. J. FRASER, M. D.,

SURGEON,

No. 108 Stockton street, S. F., Cal.



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

## Steam Engines and Boilers,

MARINE AND STATIONARY,

## IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.  
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GODDARD & CO.

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## Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

## STEAM ENGINES,

Quartz, Flour and Saw Mills,  
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 8-97

## MACHINERY

—AT—

## GREATLY REDUCED RATES.

## Miners' Foundry &amp; Machine Works,

235 TO 245 FIRST STREET,  
SAN FRANCISCO.

This Establishment is now working upon the CO-OPERATIVE PLAN,

And are thereby enabled to manufacture MACHINERY, CASTINGS &amp; BOILERS AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

## PACIFIC

## Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of RAILROAD AND OTHER IRON AND Every Variety of Shafting,

Embracing ALL SIZES of Steamboat Shafts, Cranks, Pistons and Connecting Rods, Car and Locomotive Axles and Frames

## HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron. 9v143m

## THE RISDON

## Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.  
CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

## Directors:

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John N. Risdon.WM. H. TAYLOR.....President.  
JOSEPH MOORE.....Vice President and Superintendent.  
LEWIS R. MEAD.....Secretary.

J. C. CALDWELL, President. REESE LLEWELLYN, Superintendent.

## COLUMBIA

## Co-operative Foundry Company,

(INCORPORATED MARCH 16, 1871),

133 and 135 Beal Street, between Mission and Howard,  
SAN FRANCISCO.

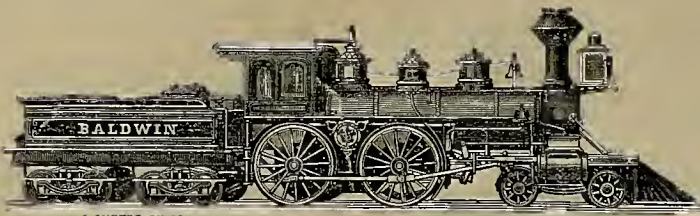
Manufacturers of

## MACHINERY AND CASTINGS

of every description.

Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

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M. BAIRD &amp; CO., Philadelphia,

## MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

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## VULCAN IRON WORKS,

Nos. 80 to 90 North Clinton Street, Chicago, Ill.

## ATKINS &amp; BURGESS,

MANUFACTURERS OF

## STEAM SHOVEL OR LAND EXCAVATOR,

STEAM DREDGES, STEAM PILE DRIVERS, MILL

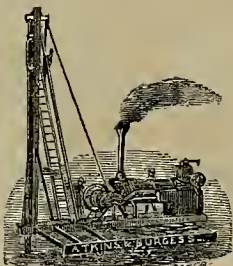
GEARING AND

## GENERAL MACHINERY

CASTINGS

MADE TO ORDER.

Jobbing Promptly Attended to. 24v22-3m

GEORGE T. PRACY,  
MACHINE WORKS,109 and 111 Mission Street,  
SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

## STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY,

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand. 4v23H

## UNION IRON WORKS,

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## WILLIAMS, ROOT &amp; NEILSON,

MANUFACTURERS OF

## STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Doobar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

## SEVERANCE HOLT &amp; CO.,

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## Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 15, No. 315 CALIFORNIA STREET, San Francisco. 25v20-3m

## THOMPSON BROTHERS,

## EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard  
San Francisco.

## LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

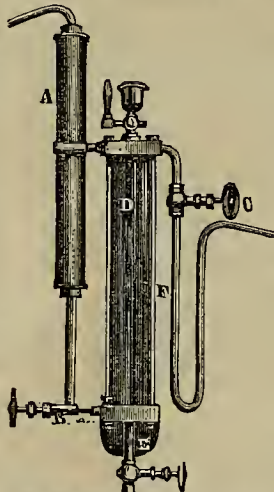
## JOS. THORNHILL,

## BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &amp;c., Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

## Machinery.

## GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION:—D is a glass chamber which contains the lubricant. C is a valve connecting with cup which introduces the lubricant into chamber D. F is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe (therefrom). A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the ejection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. 1e18-1f

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ing Cloths; Smut

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Dusters; Mill Picks;

Mill Picks dressed;

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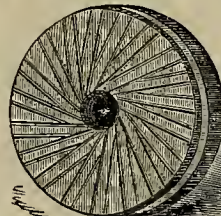
French Burr Mill

Stones, Portable

Mills of all sizes,

Salt, Paints, Drugs, &amp;c. Mills specially adapted for

Sanding Quartz. 41 First st., San Francisco.



from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &amp;c. Mills specially adapted for Sanding Quartz. 41 First st., San Francisco. 41v22-1jyna

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ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. PRICES MODERATE. J. H. WEED V. KINGWELL.

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company gives a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it,

DO NOT BE DECEIVED

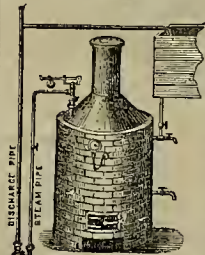
by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works. Ten of these Mills are now in operation. For further particulars address

FURMAN R. WILSON,

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## STEAM JET PUMP.

Blackslee &amp; Williams' Patent—For Water, Oils, Acids, Etc.



The best COLD WATER PUMP for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

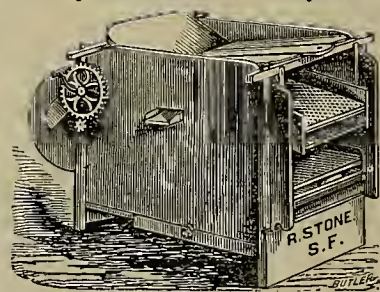
We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

Satisfaction guaranteed or the money refunded.

Send for Circular. PARKER &amp; HUNT, Southeast cor. Tenth &amp; K Streets, Sacramento City Cal. AGENTS—CHAS. F. BROCK, 117 California st., San Francisco; KEEP &amp; BARGION, Stockton. Can be seen at McAFEE, SPIERS &amp; Co's. Boiler Works, S. F. 21v21-1f

## THE PATENT

## Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

For further information apply to R. STONE, 25v22-3m 422 Battery street, San Francisco.

McAFEE, SPIERS &amp; CO.,

## BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco. 22v21-1f



**POWER, TAINTER & CO.,**  
MANUFACTURERS OF



**WOOD-WORKING MACHINERY,**  
3003 Chestnut street (West end Chestnut street Bridge),  
PHILADELPHIA.  
Woodworth Planers a Specialty. 2v23-1y

**Metallurgy and Ores.**

**RODGERS, MEYER & CO.,**  
COMMISSION MERCHANTS.

**ADVANCES MADE**  
On all kinds of Ores, and particular attention  
PAID TO  
CONSIGNMENTS OF GOODS.  
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**SWANSEA.**

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

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STATE ASSAYER,  
Analytical and Consulting Chemist,  
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Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.  
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

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CHEMIST.  
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(Opposite the U. S. Branch Mint.)  
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19 and 21 First st., In Golden State Foundry.  
**RIOTTE & LUKHARDT.**  
Ores Crushed, Sampled and Assayed.

Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

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One Door West of Montgomery.....SAN FRANCISCO.

**J. A. MARS, Assayer.**  
Analysis of Ores, Mineral Waters, etc. 10v26  
O. W. STRONG. W. L. STRONG

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Metallurgical Works,  
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We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v21f

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Vessels, Apparatus, Sheet, Wire, Etc., Etc.  
For all Laboratory and Manufacturing Purposes  
H. M. RAYOR,  
25 Bond Street, New York.  
Platinum Scrap and Ore purchased. 22v18t

**Varney's Patent Amalgamator.**  
These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

**This Amalgamator Operates as Follows:**  
The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

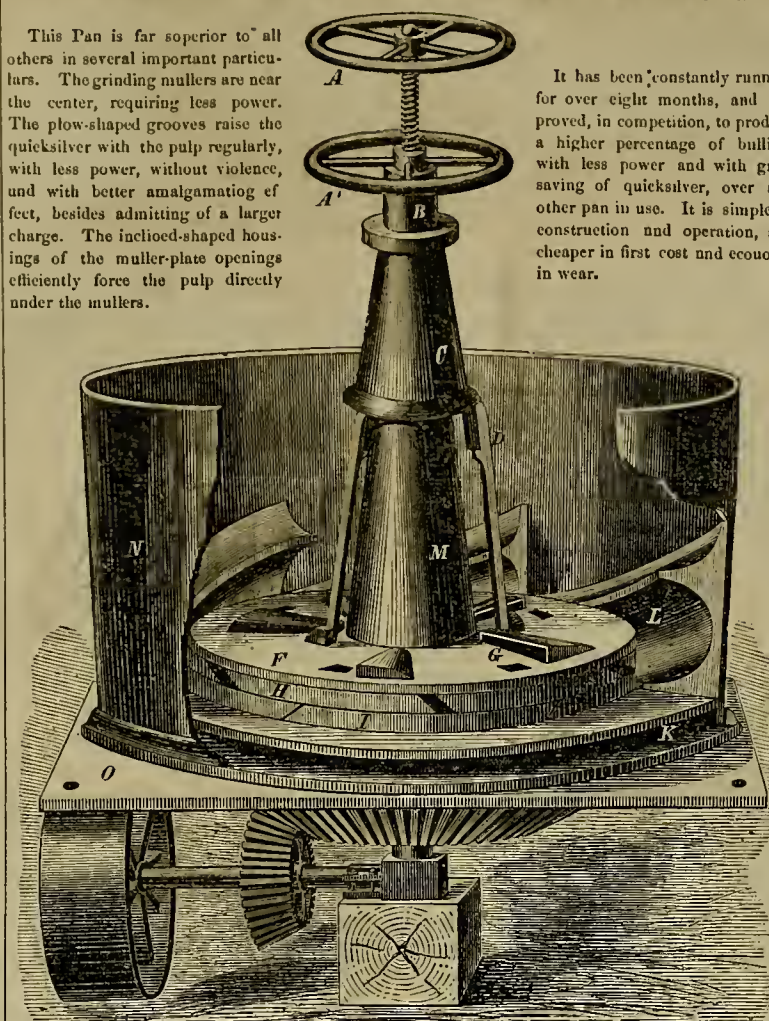
Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.  
Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

**WHELPLEY & STORER, FURNACES,**  
MACHINES AND PROCESSES.

WHELPLEY & STORER offer for sale their Pulverizers, Processes, and Water Furnaces for Gold and Silver Ores, in any part of the United States, and the Stetefeldt Furnace in Mono and Alpine Counties, Cal. They have no agents in California, Nevada or elsewhere.  
Address **JACOB J. STORER,**  
24v22-3m Boston, Mass.

**STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.**

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

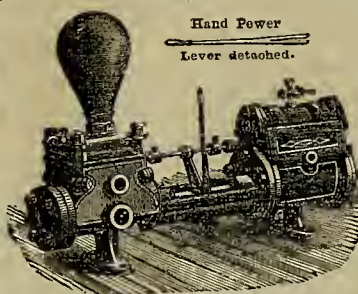


It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.  
Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pan has long been in constant operation. 15v20-1mr, 1amtf

**BLAKE'S PATENT STEAM PUMP.**

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast, as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility having no cams, nor complex rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any band work whatever. The Blake Pump is extensively used on Railroads and Steamboats; in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them; we claim for it that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by BERRY & PLACE, Machinery Depot, 112 and 114 California st., San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.



**San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.**  
**F. I. CURRY** (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low  
Pressure  
**BOILERS**  
of all descriptions.  
SOLE  
Manufacturers of the  
CELEBRATED  
**SPIRAL BOILER.**  
22v22-3m

**To Coal Operators, Miners and Railroad Corporations.**

YOUR ATTENTION IS INVITED TO  
**THE GRICE & LONG LOCOMOTIVE WORKS,**  
1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;  
Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and adopted by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.  
Messrs. G. & L. were the PATENTEE'S AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

**SEND FOR CIRCULAR AND PHOTOGRAPHS.**  
23v22-3m

**Miscellaneous.**

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South Point Mills, Berry Street,  
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners, Billiard Balls and Ten Pins, Fancy Jewels and Belusters. 21v22-6m.



Sects and Creeds differ, but there are no dissenters from the general principle, that a great medicine is a great blessing. We have many of these blessings, but among them all, in the province to which it belongs, no greater than

**Tarrant's Effervescent Seltzer Aperient.**  
A column would not suffice to enumerate the ailments for which it is prescribed by physicians of the highest standing. It does not belong to the class derisively termed patent medicines, but is an article based on scientific analysis, and will stand the test of the sharpest and most rigid medical criticism as a cathartic, a stomachic, an anti-febrile preparation, and an admirable remedy for all bilious complaints. LET THERE BE NO MISTAKE. SECURE THE GENUINE ARTICLE ONLY.  
SOLD BY ALL DRUGGISTS.



**NELSON & DOBLE,**  
AGENTS FOR  
**Thomas Firth & Sons' Cast Steel.**



MANUFACTURERS OF  
Sledges, Hammers, Stone Cutters, Blacksmiths' and Horse-Shoers' Tools,  
13 and 15 Fremont street, near Market, San Francisco.  
10v14qr

**GOLD-SAVING**  
**Silver-Plated Amalgamating Plates**  
FOR MINERS AND MILL MEN,  
At San Francisco Plating Works, 655 Mission Street, San Francisco.

Oods of every description Plated.  
Old Oods Re-plated.  
24v22-3m **E. G. DENNISTON, Proprietor.**

**California File Manuf'g Co.**  
437 BRANNAN STREET, bet. Third and Fourth.  
W. WUSTHOFF, L. KRAMER  
**REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.**

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v15-4y

**CAST IRON PIPE,**  
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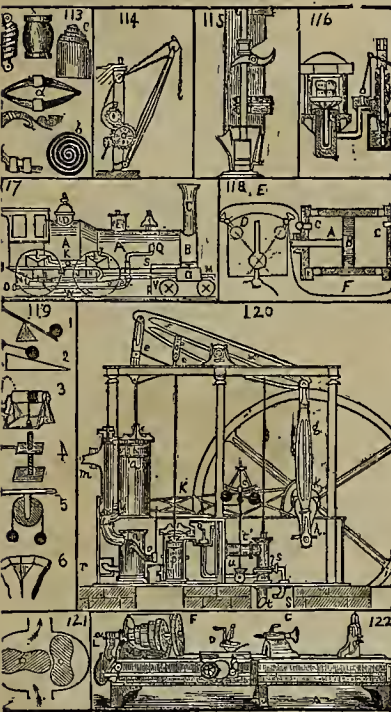


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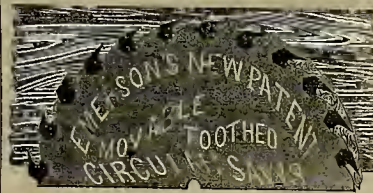
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SAN FRANCISCO, SATURDAY, AUGUST 19, 1871.

VOLUME XXIII.  
Number 7.

## Our First Narrow-Gauge Passenger Locomotive.

This locomotive—with two others for freight service—has just been completed for the Denver & Rio Grande Railway at

two-thirds that of the front-wheeled cars designed and built for the same road.

As much interest attaches to the subject of the speed practicable on narrow-gauge roads, we may remark that the proportions of this machine are such that it develops

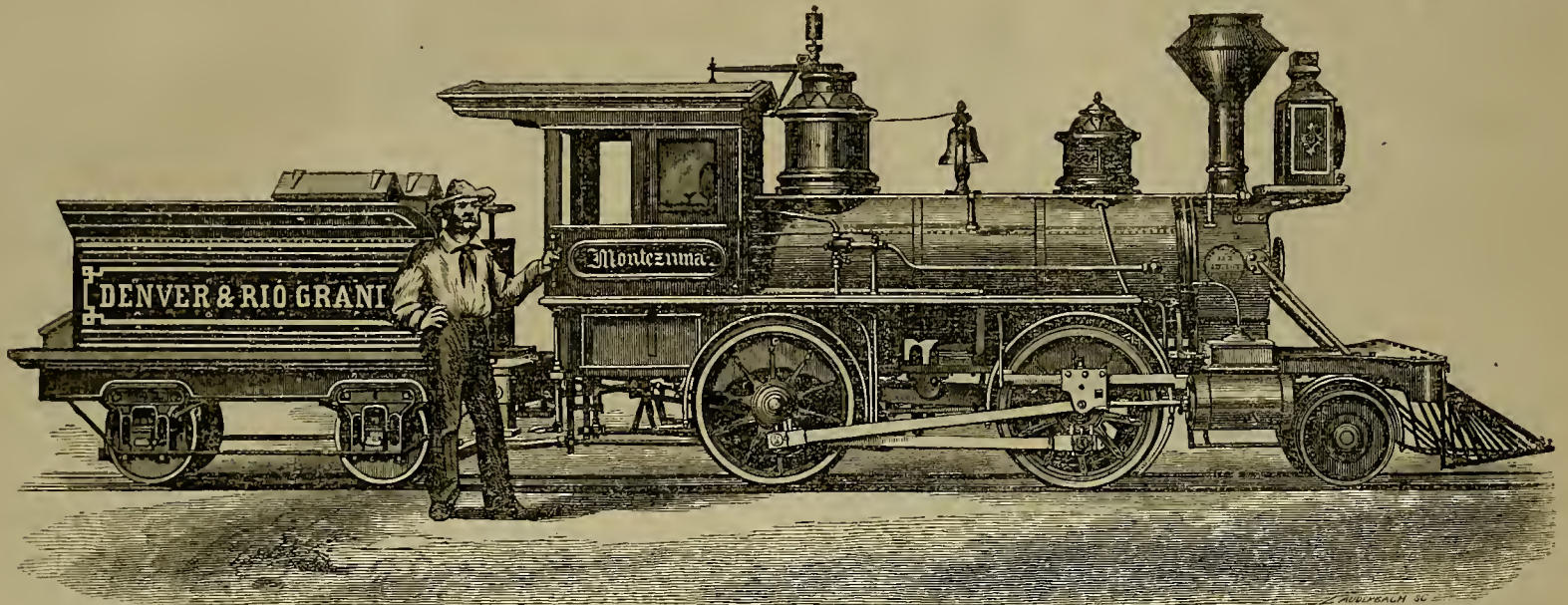
of the resistance of curves, is as follows:

On a level.....612 gross tons.  
On a grade of 40 feet to the mile.....164 gross tons.  
On a grade of 80 feet to the mile.....98 gross tons.

From these figures should be deducted 17 gross tons, the weight of the engine and tender in working order, to get the total

## Trials of Road Steamers.

We would call the special attention of our readers to the extraordinary performances of the Hyde Road or Overland Steamer, as detailed on another page of



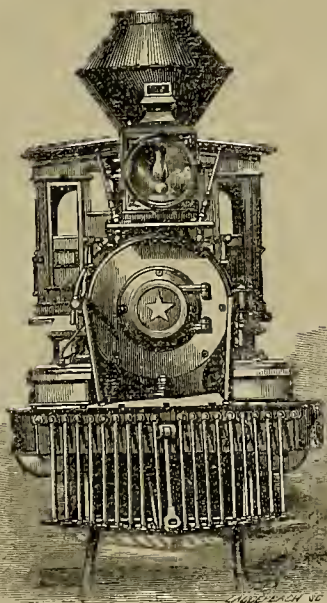
NARROW-GAUGE PASSENGER LOCOMOTIVE FOR THE DENVER & RIO GRANDE R. R.—SIDE VIEW.

the Baldwin Locomotive Works, Philadelphia, and by the time this meets the public eye will undoubtedly be at work on the pioneer, narrow-gauge line in the United States. As this machine is entitled to the designation of the first narrow-gauge passenger locomotive built or operated in this country, a brief description of it will be of interest both to the railroad and the general public. Its dimensions are as follows:

Cylinders, 9 inches diam. Stroke of piston, 16 inches.  
Diameter of driving wheels.....40 inches.  
Diameter of pony wheels.....24 inches.  
Distance between center of pony wheels and center of front drivers.....5 ft. 8½ in.  
Distance between driving wheel centers.....6 ft. 3 in.  
Total wheel-base of engine.....11 ft. 11½ in.  
Rigid wheel-base (distance between driving-wheel centers).....6 ft. 3 in.  
Capacity of tender.....500 gallons.  
Diameter of tender-wheels.....24 inches.  
Distance between centers of tender-wheels.....6 feet.  
Total wheel-base of engine and tender.....26 ft. 5½ in.  
Length of engine and tender over all.....35 ft. 4 in.  
Weight of tender empty.....5,500 lbs.  
Weight of engine in working order.....25,300 lbs.  
Weight of engine on drivers.....20,500 lbs.  
Weight of engine on each pair of drivers.....10,250 lbs.  
Weight of engine on pony wheels.....4,800 lbs.  
Height of smoke stack above rail.....9 feet 9 in.  
Height of cab from foot-board to center of ceiling.....6 feet 3 in.

It will be seen that the rigid wheel base is given as 6 feet 3 inches, the distance between center of driving wheels. This is due to the fact that the leading or front wheels are fitted with a swing bolster and radius bar allowing them to move laterally under the engine in passing curves. These wheels are also equalized with the front pair of drivers. By this arrangement, while the front truck assists in guiding the engine on a curve and so relieves the front pair of drivers from the excessive wear of tires which would otherwise result, the rigid wheel base is reduced so that the engine will pass curves of very short radii without difficulty. It is in fact only about

the same total travel of piston in going one mile as does a locomotive having 24 inches stroke of piston and driving wheels 5 feet in diameter. It is therefore appa-



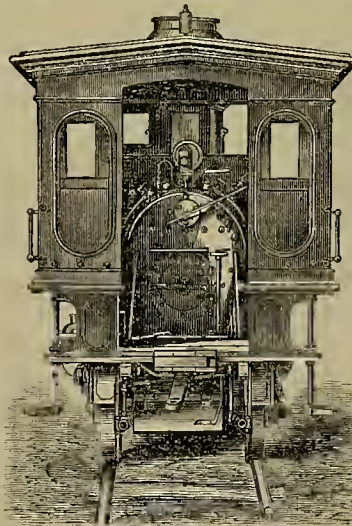
FRONT VIEW.

rent that equal or nearly equal speeds are possible with this engine as with the engine of the usual pattern on the full gauge, i. e. 24 inches stroke and 5-foot drivers.

The plan of this engine gives somewhat more than four-fifths of the whole weight on the drivers, so utilizing it for adhesion. Its tractive power on a good rail exclusive

weight of cars and lading which can be drawn on a level or on the grades named.

The freight locomotives built for the same road have three pairs of drivers and a swing bolster pony truck. Their cylinders are 11 inches diameter and 16 inches stroke; drivers 36 inches. The total weight



REAR VIEW.

of engine in working order is 33,500 lbs., of which about 29,000 lbs. are on the drivers. Being distributed to three pairs of wheels, the weight on each pair of drivers is a little less than 10,000 lbs., nearly the same result as with the passenger engine. The large amount of attention now being given to narrow-gauge railroads in this State will lend additional interest to the above.

the present issue. When we take into consideration the wild, rugged nature of the country, the primitive condition of the roads and the unsuitable water and difficulty of obtaining the same, without previous preparation, the accomplishment of this engine is unequalled by anything of the kind on record. The trip was certainly a most extraordinary one, and will be read with much interest by engineers everywhere. In order to give the details as full and perfect as possible, we have given the engineer's "notes" just as they were penned from day to day—a record which will be fully appreciated and understood by practical engineers. To the end that a fair comparison may be made between the performances of this engine and the various engines which have been brought out in other localities, we shall next week give the details of a trial of several road steamers which was made a week or two since at the Fair Grounds, in Waverly, New Jersey, the particulars of which have been opportunely furnished us by our New York correspondent; also another trial of a similar character which took place at the July meeting of the Royal Agricultural Society of England, at their Fair Grounds in Wolverhampton, the particulars of which are now before us in the Birmingham News of July 4, 1871. These reports, which are too lengthy for insertion to-day, will show a most favorable contrast in behalf of our California machine over any other which has yet been put to a public trial. Letters patent for the United States have already been secured through the agency connected with this office, and steps taken to secure foreign patents.



## MECHANICAL PROGRESS.

## Petroleum for Fuel.—Another Difficulty Overcome.

Our readers have been informed from time to time, of the progress which has been made in efforts to introduce petroleum as fuel for making steam and for other important purposes. After the experiments reported some three years since in this city, in New York and Boston, there appears to have been a cessation of public experiments at least; but it appears that inventors in the mean time have not been altogether idle in this important line of progress; for we are now informed through the *Missouri Republican*, that another series of experiments were commenced in May last, at the Laclede Rolling Mills, for testing the value of petroleum as a fuel for heating iron furnaces.

The petroleum, in this instance, as in all others, which have been tried with any remarkable degree of success, is converted into a gas, in a retort, before being burned; but the improvement here consists in admitting small jets of superheated steam into the bottom of the retort, whereby a constant agitation is kept up and a larger amount of carbon is converted into gas than in the retorts heretofore constructed; or it is carried off mechanically by the force of the steam, and burned in the gas flames, as finely divided, free carbon. At all events, the account before us asserts that no free carbon collects in the retorts, a circumstance which has heretofore constituted the fatal hindrance to all attempts to burn petroleum, on a large scale, for making steam.

At the Laclede mills, the iron is brought to a white heat by petroleum, in one-fifth the time required by the use of coal. The saving in fact is claimed to be from 30 to 50 per cent.; and so successful have been the experiments there that they are already being repeated in other localities and for other purposes. Ever since the first attempts to use petroleum for steam fuel in this city, we have expressed our confident belief in its eventual success, and it is with pleasure that we record this new evidence of progress in this important matter. We shall look with much interest for further developments which will be reported as soon as received.

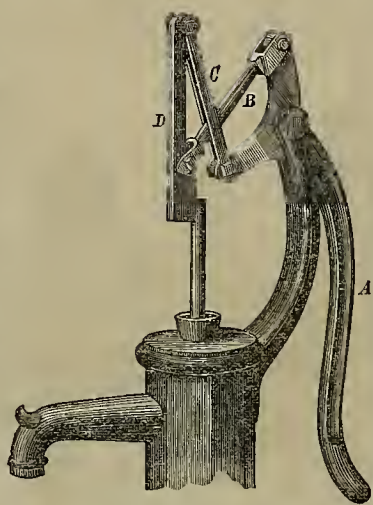
## Use of Oxygen for Clearing Oil Wells.

One of the chief causes for the cessation in the flow of oil wells is the accumulation of paraffine, which adheres to the walls of the well itself or to those of the crevices in the rocks through which the wells are fed. Torpedoes, charged with dynamite or other explosive compounds, have been used for several years as a means for removing this paraffine. This device, however, has often been found not only to fail in the removal of the obstruction, but also sometimes to materially injure the wells themselves, or to wholly close them up instead of clearing them out. In view of these failures a new plan has been adopted, which consists simply in burning out the paraffine, by the introduction into the well, of oxygen to sustain the process of combustion. The oxygen is brought in contact with the obstructing paraffine by means of pumps and pipes, and there ignited. The fire is commenced at the point of obstruction nearest the surface, and is continued downward and out into the lateral crevices, wherever the paraffine is collected, and continues to burn so long as oxygen is supplied to keep it up. This method is found cheaper and much more effective than the use of torpedoes, and no danger is incurred of injuring either the well or tubing.

**COAL SUPPLY OF ENGLAND.**—The Impression has become very general that the coal supply of England is being rapidly exhausted. The short period of 100 years even has been fixed upon by some as the time when an end would be put to anything like the present supply. Such reports were even beginning to affect the movements of capital; and so much alarm was manifested that a Royal Commission was appointed,

two or three years since, to examine into the present condition and future prospect of the supply. This commission has nearly completed its labors, and, according to the *London Times*, the report will contain a demonstration, that, even after making all reasonable allowances for the annual increase in the demand, there is now remaining in the mines, in a position of economical availability, coal enough to meet the wants of the British Isles for from 800 to 1,000 years to come. The appearance of this report is looked for with much interest.

**A NEW MECHANICAL MOVEMENT.**—The accompanying engraving illustrates a new mechanical movement, recently invented and patented by E. G. Russell, of Ravenna, Ohio. We show the movement attached to a pump; but the principle is one capable of wide application. By it a circular motion is converted into a rectilinear one, within a very limited arc or



space. Referring to the engraving it will be seen that this is accomplished by means of crossed links, which, in the illustration, are pivoted to the arms of the pump handle, and by other pivots connected with the pump rod. Many instances will occur to the mechanical reader where such a movement may be advantageously applied.

## Hoop Iron Chains.

A chain of the most remarkable texture and workmanship has recently been described in the English journals. The links of this chain, oval in shape, are made from ordinary hoop iron, galvanized and brazed. According to the accounts we have seen of this curious piece of work, the hoop iron is first wound on a reel by a machine suitable for the purpose until the requisite thickness is secured, after which it is passed through a furnace of molten metal. It is then rounded off and finished ready for the brazing, which completes the process. The links are then joined, and between each link is a stay, as in ordinary chains. The strength of a chain thus made is said to be something enormous. In some experimental tests lately made, a 2-inch chain of this pattern was attached to a wrought-iron testing chain of 2½ in. diameter, and on the application of hydraulic power the links of the hoop iron chain were elongated ¼ in., and those of the wrought-iron chain ⅜ in.—the strain being equal to a suspended weight of 110 tons. When the strain had reached 114 tons the testing chain broke, and a careful examination of the hoop iron chain showed that, with the exception of some unimportant openings in the links, which did not seem to have been properly brazed, it did not show any evidence of the extraordinary strain to which it had been subjected. If the results thus described were actually reached, the invention may prove of the greatest practical importance as applicable to the manufacture of chains of unusual strength and small size. We have no information as to whether the process of manufacture is more expensive than that now employed, or whether it is less so—but if the information we have received respecting the strength of these chains be correct, we should say that any increase in cost would be more than compensated by the superior advantages of hoop iron chains for heavy work.—*Iron Age*.

## SCIENTIFIC PROGRESS.

## The Heavens From a Southern Point of View.

Dr. B. A. Gould, it will be remembered by many of the readers of the *PRESS*, has recently been appointed director of the observatory at Cordoba, a city of the Argentine Republic, located on the eastern slope of the Andes and near the center of the South American continent. This distinguished astronomer has already arrived at his post, and entered upon his specific labor of mapping the stars of the southern hemisphere. In a letter to the *American Journal of Science* for August, he speaks very enthusiastically of his work. He says the transparency of the atmosphere at Cordoba greatly facilitates astronomical observations, and exhibits to the trained eye an almost incredible number of stars, nearly twice the number that can be seen in the same constellations from the observatories in the northern hemisphere. In the *Canis Major*—an extreme instance—200 stars are defined, while Argelander saw but 39. The magnificence of the Milky Way, as seen from the vicinity of Cordoba is spoken of as perfectly indescribable. When seen through the telescope, even by those not unused to such observations in other climates, exclamations of astonishment and delight are universally evoked.

The knowledge of the southern constellations is as yet very limited, and much of the extreme southern sky is utterly unknown. Much is expected from the researches of Dr. Gould and his associate in this interesting field of research.

The Doctor is especially anxious to be furnished with a photographic equipment, and a trained photographer. It is but reasonable to suppose that even the magnificent photographs of the moon taken by Mr. Rutherford, might be greatly excelled, when taken with equal care and skill through the pure and transparent atmosphere of that locality.

**SACCHARATE OF MERCURY.**—The theory of saccharate of mercury, as applied to the saving of the precious metals is stated, by the inventor, in the *Scientific American*, as follows:—"The difficulty in getting mercury thoroughly incorporated with clay ore, or washings from crushing machines, renders it advisable, if possible, to combine the mercury with some substance soluble in water. If this can be effected, a very small quantity of mercury will do for the purpose, as it will be brought into contact with every particle of gold in the mass. I have rubbed mercury and sugar together in a mortar, and find that the sugar immediately acquires a pale gray color, the granules being coated with the mercury in the finest possible degree of comminution. If this powder be thoroughly mixed with pulverized ore, and the whole then washed with water, there will be no grain of earth, and consequently of gold, that is in contact with metallic mercury. This is the theory, and it seems eminently practical. 'Chalk, molasses, and many other substances' have no kind of fitness for the purpose."

Perhaps some of our California millmen may be disposed to give the preparation a practical solution. If any one should do so, we should be pleased to give the result, through the columns of the *PRESS*.

**COLD GALVANIZATION OF IRON.**—The metal is cleaned by being placed in a bath, made up of water 1,000 litres, hydrochloric acid 550 litres, sulphuric acid 50 litres, glycerine 20 litres. It is then placed in a bath containing 20 per cent. of carbonate potassa, and next transferred to a metalizing bath consisting of water, 1,000 litres, chloride of tin 5 kilogr., acid sulphate of alumina 4 kilogr., chloride of aluminum, 10 kilogr. The metal is left in this mixture for from 3 to 12 hours, according to the desired thickness of the coating.—*Ex.*

**BOILERS AT HIGH LEVELS.**—The facts concerning the working of boilers at high levels is given by a correspondent of the *Scientific American* as follows:—"If a boiler, whose safety valve is arranged to work at 50 pounds under an atmospheric pressure of 15, be carried to an elevation where the atmospheric pressure is only 9 pounds, it will do the same service, when the safety valve lever or balance indicates an internal pressure of 50 pounds; because, although the actual internal pressure is only 44, the

back pressure of the engine is reduced 6 pounds per inch.

Pressure gauges are made to indicate an excess of internal pressure over the atmospheric pressure of 15 lbs. per inch, so that if an ordinary pressure gauge indicates an internal pressure of 50 pounds under an atmospheric pressure of 9 pounds, the actual internal strain on the boiler is 56 pounds per inch, which shows an increased strain of 6 pounds per square inch, when working according to the ordinary pressure gauge.

## Astronomical Observations.

The statistics of modern astronomical observation, (we condense from *Nature*) would be very curious, if it were possible to get at them. A report showing the gradual increase in the number of telescopes manufactured during the last 50 years would be very interesting; and so would a table comprising at once the advance in their dimensions and the diminution in their cost. The result would at first sight cause great surprise among those unacquainted with the subject, or those whose recollection does not go back to days when 5 inches was as extraordinary an aperture as double that size now. But the number of competent observers has not increased proportionately. For this there are several obvious reasons. One is that the process of discovery is not, generally speaking, renewable. What has been once detected is usually placed on record in har of all future claims. Again, looking upon the observer and his instrument as a complex apparatus, the improvement of the intelligent has not kept pace with that of the material part. The unimprovable constitution of our own atmosphere is a physical obstacle which must not be forgotten. The only way to obviate this grievous hindrance is to get above it; but however advantageous this may be, it must ever be confined to a favored few. If, however, we have asserted that observers have not multiplied in proportion to the means of observation, this is but a relative statement; the absolute fact is that at no former time has there been so numerous, or so zealous, or on the whole so competent a band of astronomical students.

**MINERAL WEALTH LOST TO FRANCE.**—According to the *London Mining Journal*, the cession of Alsace and Lorraine gives Germany 25 iron furnaces with a production of 204,579 tons, leaving in France only 12 furnaces with a production of 76,466 tons. It would appear that the Prussian plenipotentiaries have traced out the new frontier, not on any topographical plan, but very probably on a geological map prepared at Berlin. It is noticeable, for instance, that the new limits between France absorb, to the profit of the Germanic Confederation, all the rich bearings of the oolitic ironstone in the Moselle and the Meurthe, the Longwy group excepted. Thus the concessions remaining in France comprise an area of 5,333 acres, producing, according to the last available returns, 140,281 tons per annum, while the concessions in Alsace and Lorraine transferred to Germany comprise an area of 18,062 acres, with a production of 500,660 tons per annum.

**THE SHERMAN PROCESS**, of which so much has been said and written in England during the past few months, appears to be losing favor. At the last meeting of the Iron and Steel Institute in London, such prominent iron masters as Messrs. Menclaus, of Dowlais, Hopkins, of Cleveland, and Mr. I. L. Bell, stated that the results following his process were quite inapplicable. Mr. Seimens said that when he first heard of the process which claimed to drive out all the sulphur and phosphorus in a ton of iron with an ounce of "physic," he knew such a result was impossible, and the experiments which had been made proved the correctness of his opinion.—*Van Nostrand*.

**FOSSILIFEROUS GRANITE.**—M. Reinsch, inspector of Mines at Gotha, states that he has recognized microscopic organic remains, both animal and vegetable, in certain granite rocks which have heretofore been reputed to be of igneous or eruptive nature; and Dr. Müller mentions a phenomenon which has some analogy with the preceding, viz.: The existence of living creatures in the waters of the Geysers of California, at a temperature of 202° F.



# CORRESPONDENCE.

## A Trip to Colorado.—No. 6.

BY OUR OWN TRAVELER.

Georgetown.

This is the county seat of Clear Creek Co., situated on south Clear creek, affording the best water-power in Colorado. It is the center of the richest silver region in the Territory. Mining in the vicinity this year is giving better returns than ever before.

One of the essentials for the rapid advancement of this city is "the coming railroad," making direct rail communication from abroad and enabling the transportation of base ores to the valley in proximity to the coal beds, cheapening the cost of reduction and increasing the products immensely. The proposed route is from Denver to Golden, thence to Central City, via Gilpin and Clear Creek counties, and thence to Georgetown.

Here silver and lead are the predominant metals, while at Empire, only a few miles distant, gold is the principal metal.

The McCoy and the Leggett hotels offer the greatest accommodation to the traveling public, affording a cordial welcome to the stranger. Twelve miles distant from this city is the well-known Gray's Peak, 14,245 feet high. Many Eastern tourists are now visiting it. On horseback parties can go up and down on the same day, and view the numerous small ranges, spurs and peaks. Visitors say it affords a grand

has been taken out. They pay the miners by contract, \$20 per foot, and in some few places pay only \$16. They pay \$35 to \$40 per fathom for stoping on the lode. The ore is sorted at the mine and the first-class is taken to Swansea. The Philadelphia Co. own 500 feet and the British Co. 1,100 feet. The two companies own a small Burleigh drill and will have it going shortly. The character of the ore is galena, zinc blende, iron pyrites, silver, etc. The formation is "peach granite," a term used by miners.

The CHASHER SILVER MINE is about half a mile from the Terrible, on Sherman Mountain, Griffith district. C. A. Hoyt is agent and superintendent. The main shaft is 140 feet deep with drifts 60 feet deep on each side. The main shaft is filled with water up to the drift running west, but a small pump keeps the drift dry. Twelve men are employed. Considerable stoping has been done. The lode is small, about four to six inches in granite. The ore is argentiferous galena, pyrites, gray copper, and specimens of native silver, which assays \$50 and upwards. A new engine for hoisting and driving a fan has been put up.

The BURLEIGH TUNNEL AND MINING CO. While passing up the middle branch of Clear Creek I visited this well-known tunnel, with Mr. C. Burleigh, one of the owners and the inventor of the famous Burleigh drill. In company with him I was shown through the mine. The main tunnel is in 1,075 feet. They have one of the tunneling machines (formerly illustrated in the Press), at work, doing very well indeed. It costs the company from \$32 to \$33 per foot to run the tunnel, 9x9. The expenses before have been as high as \$60. For many years efforts have been made to bring out a drill for working tunnels, and now this seems to be a success. This company have eight drills, and employ two rock men, two blacksmiths, and two engineers, working day and night. They have struck some very fine smelting ore that will yield 55 per cent. of lead and 30 ozs. of silver. This was the return from a sample lot worked.

Idaho Springs.

About six miles from Central City and 35 miles from Denver, on South Clear Creek, are situated these noted hot springs, amidst grand mountains and beautiful scenery. Eastern tourists are visiting them numerous and enjoying the accommodations of the Beebe and Springs hotels.

W. H. M.

## Great Waste of Precious Metals.

EDS PRESS:—I observe in your issue of Aug. 5th, that the ore of the "California" mine, in Julian District, San Diego county, has yielded \$1 per pound in a hand mortar, and \$57 by mill process." We are left entirely in the dark as to whether it is \$57 per pound by mill process, and \$1 by hand, or whether it is \$57 per ton by mill, and \$1 per pound by hand. In either case, the services of our mutual friend, Mr. A. B. Paul, are very much needed in Julian District, to prevent such a shocking waste of the precious metal. There must be either gross carelessness or gross dishonesty on the part of the millers of such rich ore, for the difference between \$1 per pound and \$57 per ton is something enormous—say only \$1,943. Perhaps, it might be mildly suggested that there is no dishonesty or carelessness in the working of the ore, but that the discrepancy shows the need of more accuracy of statement on the part of the mining correspondent. If this is not the true cause, Mr. Paul should visit that district without delay.

T. T.

We suppose that the "\$57" was so much per ton; and there need be no difficulty in accounting for the wide margin between the \$1 per pound and \$57 per ton, if we suppose the "pound" was simply a "specimen." As remarked by "T. T." there is "need of more accuracy of statement on the part of mining correspondents."

## Wandered to the Left.

EDS. PRESS:—I see in the late daily papers of San Francisco, an account of the wanderings of a young girl in Sonoma county, Miss Steen, residing at Garcia's mills, who was found, after four days' search, seven miles from the point from whence she started on her return home, and far to the left of the true course. This

seems a substantial confirmation of the theory advanced a few weeks since in your columns, and a refutation of the opposite opinion expressed by your correspondent "Curiosity" and a certain lecturer, as to which side a person would be inclined to walk under similar circumstances. The situation of Miss Steen, lost in the woods, without path or road to which she had been accustomed, is precisely the one I proposed to your correspondent as an experiment that would be conclusive on this point. He has been saved the trouble of trying it for himself, however, by the experience of the young lady above mentioned. He will find a full account of the event in a late number of the *Alta*. If his "curiosity" is not thereby wholly satisfied he can still continue his experiments until it is. If properly and fairly conducted, they can have only the result above given, in the opinion of

PHILO SOPHOS.

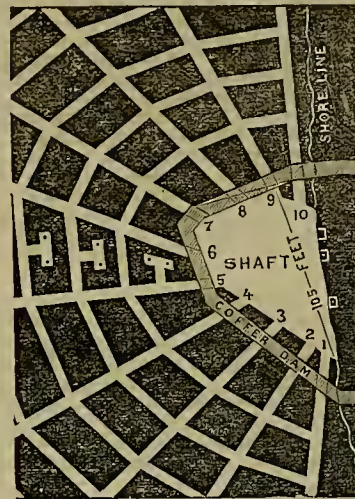
Shermantown, Nev., Aug. 8th, 1871.

## The Hell Gate Obstructions.

BY OUR NEW YORK EDITOR.

The Blossom Rock Plan Being Tried There.

From a time to which the memory of man reached not, our venerated Uncle Samuel has been at work removing obstructions from Hell Gate at the entrance of New York harbor. Divers, drills, gun powder, nitro-glycerine, dynamite, dualin and nobody-under-the-sun-knows-what not—have been tried, and lots of money



sunk in rendering the passage to the sound reasonably safe. But Hell Gate, opening its jaws for all that came, took the powder and nitro-glycerine with as much complacency as it did the vessels afterwards. Nothing came amiss.

Visit to the Works.

Uncle Sam is patient, but his long suffering has an end. Now he proposes to "go for" Hell Gate and "knock the bottom out of it." In other words he proposes to treat the obstructions to a dose of the same medicine which "settled" Blossom Rock so effectually. To do this, a large shaft or rather a pit, for such it seems when looking into it, has been sunk near low-water mark at a point near the obstructions. This shaft is nearly egg shaped with the side toward the shore very much flattened. One side may be said to be against the shore, as there is no water on the land side at low tide. This high hole is now a trifle above 31 feet deep, though some places may go as much as 35 or 36.

On the water side, headings, drifts, tunnels, or whatever the mining men call them, are being put into the solid rock. Beg pardon we did not mean it for from appearances the gneiss, as it is called, did not appear to us of a very formidable character. It is filled with perpendicular seams or lines of cleavage, and, taken all in all, would not strike an Eastern man as very hard stuff to deal with. Still the powers that be say its tough and we suppose that settles the question for all time. In a good many places salt water is finding its way through the rock in such quantities as to suggest to a stranger the question of safety. At several places we noticed that a wall of rock had been laid up carefully in cement, apparently because the natural rock was too weak to stand the pressure. Two only of the openings beneath the river were dry,—that is to say were not raining from the roof. At one of

these named, if our memory is correct, "Grant," we found a board nailed to the rock stating that the floor was 31 feet below mean low water, the dimensions 22x13 feet, and that it extended beneath the river a horizontal distance of 320 feet. We believe the latter fact because the board told us so, and not because of any measurements on our part. If it had been proper to guess how far the heading had advanced we should have said about half as much.

Plan of the Underground Work.

I send you herewith a diagram of the drifts and galleries which are now being run. The tunnel headings average 20 feet in height by 13 in width. The concentric galleries average 16 feet in height by 10 in width. The shaft or pit is 105 feet in length—its breadth being considerably less. From this shaft radiate ten headings as shown in the diagram annexed, which have been driven to various lengths; the first and tenth headings following the proposed shore line. The headings are to be crossed by galleries, and the piers left standing are to be penetrated by chambers, having a ground plan of the form of the letter T, as shown in three of the piers. In these chambers the final charges will be placed and fired, when it is expected the entire mass of rock, left standing after the cuttings, will be broken in pieces of such a size that they can easily be lifted and removed. The principal portion, in fact, practically the whole of the work, has been done by Cornish miners, imported for the purpose, and with hand drills.

On the Surface.

There were no engineers about, and everything looked as though all went to sleep as soon as possible after each meal. There were men loafing about, one of whom seemed very busy teaching a dog to bring chips out of the water as fast as they were thrown in. Another man was doing the "heavy looking on," and much interested. Doggy did not see the propriety of rescuing the same chip three times in succession, and accordingly ran off with it, thrust it into a hole beneath the timber-work, and looked about for more government work to do, whereupon we all felt called upon to go and look at the hole. Doggy immediately signified his intention of eating up all strangers and visitors and was promptly chained beneath a new steam-boiler not yet in use.

Somebody just then brought a quantity of newly sharpened drills to be lowered down. For a minute there was a small scramble for the tools at the bottom and then all was moving along properly. The men who handled the drills seemed pretty well occupied, but even they did not appear at all troubled by their exertions.

Long "dumps" of stone with railway tracks along their crests stretched away from the opening across the lowland to the shore. A big dump car close by the derrick looked very ready to carry away stone if there was any to be moved; but its office was apparently a sinecure, for a time at least.

We asked a few questions as possible, because they seemed to disturb the quiet of the spot and we did not like to presume too much.

The Return.

Five o'clock came and we hurried off to catch the boat. We reached a turn in the road where the landing was in sight, just in season to see the boat leave the wharf. We were sold. It was the last boat down. We rush for the ferry boat, built we judge, in the time of Fulton, from remnants of Hudson's original galliot. We succeed in getting on board and cross over to Yorkville. A half-mile walk, uphill, brings us to the 3d Avenue cars, and we rattle home in those well-known advertising mediums.

As to our opinion of the works in progress, we would say that they will be a grand success sometime; and there is no doubt that when the rocks do get their final charge of powder they will be completely demolished. We only ask when?

NEW ENGLAND EARTHQUAKES.—W. T. Brigham states that, since 1638, 227 earthquakes have been recorded as happening in New England, and four previous ones are mentioned in Indian traditions. He thinks that probably there were once volcanoes in New England, and particularly in Connecticut. Prof. Dana dissents from this opinion.

FIRES IN THE MOUNTAINS.—Thus far this season notwithstanding the unusual dryness, the farmers have suffered much less than for two or three past seasons from fires in their fields. We hear of some fires in the Coast Range mountains, however, which are destroying much timber.



sight never to be forgotten and unsurpassed by any scenery on our Continent.

[Our correspondent gives descriptive notices of Arey's furnace and Bruckner's revolving furnace (which have already been illustrated in the Press,) and Krom's dry concentrator, also previously described, all of which are reported to be in useful operation. We have a list of figures to show the economical working of these furnaces but the schedules are too lengthy for publication in this connection.—Eds. PRESS.]

Mines.

The TERRIBLE MINE said to be the best in the Territory, is situated about four miles from Georgetown on Clear Creek, at a small place known as Brownville. I received a pass from the superintendent, R. O. Old, and went up some 300 feet from the road and entered the main tunnel with the foreman, H. F. Lampshire.

We passed in some 130 feet which was run by the well-known Burleigh drill in 1869. From this point the company used hand drills and run 230 feet where we come to a drift running east and west. This cost \$42.50 per foot. The west drift is in some 90 feet on the lode, the company having struck the main lode at A, as represented in our diagram, some 360 feet from the entrance. The total number of hands employed is thirty-six men in the British Co., and eight men in the Philadelphia Co., the mine being owned between the two companies.

The lode, or crevice, will average four inches and where it is only two inches it is very rich and yields largely. I see it stated by the superintendent that with the present amount of ground that can be worked the mine will yield per month 15 tons of 1st class, 60 of 2d class, 100 of 3d class ore; a total of 175 tons. The 3d class pays the expense of mining the ore. They will put on more men at an early day and this will make the amount much larger. The stoped ground that has been worked will not make over 200 feet square on the lode, this being all the work done on the mine for the large amount of money that



# MINING SUMMARY.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**Miner, Aug. 5th:** The Exchequer mine is now yielding a large amount of the richest of Ruby ore. They have several stopes opened out where the ore shows in abundance. The ledge is several feet thick in the various levels, and they have exposed at least 170 ft. in depth on this chimney.

### BUTTE COUNTY.

**QUARTZ MILL BURNED.**—Oroville Record, Aug. 12th: The fine quartz mill of Mr. Nisbet, at Oregon City, was destroyed last Sunday night by fire. There was an insurance of \$8,000 on the property.

### EL DORADO COUNTY.

**RICH.**—Placerville Democrat, Aug. 12th: We have been shown some very rich masses of cement, taken from the claim of Gignac, on Texas Hill.

**H. Louis & Co.,** on Quartz Hill, are still taking out of their claim immensely rich rock and prospects are that they will yet find richer.

### INYO COUNTY.

**BULLION SHIPMENT.**—Independence Independent, Aug. 5th: Four bars of bullion were shipped from the mill of Hiskey & Walker, Deep Spring; two, each on the 8th and 31st of July, the whole weighing 464 ounces, valued at \$335.

**DEEP SPRING VALLEY.**—Hiskey & Walker running a tunnel for the Julia Dean ledge, are in 160 feet. They have struck a fine stream of water in this tunnel, and in a few days expect to reach the ledge. This is the first time in that camp, or in fact any of our mines, that water has ever been struck in mining tunnels and is therefore something remarkable. They intend putting up an engine and Mr. Walker has gone to Silver Peak to obtain one.

**THE CERRO GORDO FURNACE.**—Belshaw's furnace is running continuously; Beaudry's has just shut down for repairs. At these two furnaces there are now 7,000 bars of bullion on hand awaiting transportation.

### NEVADA COUNTY.

**CHINAMEN ROBBED.**—Grass Valley Union, Aug. 14th: Chinamen have been working in the bed of Wolf creek, below Allison Ranch, cleaned up their sluice boxes last Friday afternoon and just as they concluded two robbers stepped out of the chapparal and cleaned out the Chinamen.

**MINING LOCATIONS.**—Fuller & Co. have located 1,000 square feet of ground in Omega mining district in Washington township. The same Co. has located the same quantity of ground on Coyote ravine, in the same district.

### PLACER COUNTY.

**DILLION MINE.**—Auhurn Herald, Aug. 12th: The shaft is down 60 feet. The ledge, four feet wide, is square in the bottom with well defined wall rock. The owners, Dillion, Cowan & Hines, have just had fifty tons of the rock milled at the Green Emigrant mill which yielded \$29 per ton.

**SHIPLEY MINE.**—A new shaft has been sunk and from it a drift along the ledge is being run to the old Stinger shaft, where the lode is ten feet wide and rich. This shaft will be reached in some 20 or 30 ft. more. The air in the old shaft is so bad that it cannot be worked until a current of fresh air is got through it from the new shaft and drift. When this is effected, say in a week or two, the mine will furnish all the quartz the ten stamp mill belonging to the same company can work. The size of the ledge and convenient location of the mill enables the company to mine and mill the quartz at a total cost of only four dollars per ton, and many crushings from the ledge has yielded as high as \$20 to \$30 per ton.

**DIVIDED.**—The Rising Sun Co., of Colfax, last Saturday declared a dividend of \$3.50 per foot for the month of July. Their gross yield for the month amounted to over \$15,000.

The Cox & Denton Co. have struck a large deposit of very rich rock.

### SAN DIEGO COUNTY.

**MR. J. M. TIERNAU** of the McMechan mill brought from Julian yesterday a very fine specimen of gold bearing quartz out of the Redman mine. The ledge is about five feet in width and the shaft 78 feet deep. It is estimated that if the ore was all as good as this it would be worth \$20,000 to the ton.

**GOLD DUST.**—W. F. & Co. s Express shipped Aug. 20th gold dust amounting to \$300. No bullion was shipped, owing to the mills being stopped at Julian and Banner during the past two or three weeks.

**THE ANTELOPE MILL.**—Banner District, will commence running on Monday next.

**JULIAN DISTRICT.**—The mills are all running on good paying ore. Gunn, Reynolds & Co.'s mill, and McMechan's mill, are running night and day. Gunn's mill has just cleaned up 25 tons of "San Diego," which ran over \$20 per ton. He commenced on the 28th on 150 tons of "Helvetia." The "Stonewall" mill runs a few hours every day. They are getting water, and will soon run steady. The Stonewall shaft is down 80 ft., with a tunnel in 160 ft. in one direction, and 184 in another.

### SIERRA COUNTY.

**SOLD.**—Downieville Messenger, Aug. 12: It is rumored that the Independence mine has been sold to English capitalists for \$300,000.

### SISKIYOU COUNTY.

**AN IMPORTANT MINING ENTERPRISE,** is now on foot for fluming Yreka Creek. The business of Burgess and Edgerton at S. F. recently was to enlist capital and capitalists to aid in this great enterprise. They met with encouragement and since their return have secured, under bond, the privilege of purchasing at or before a certain date, for certain specified sums, the Big Ditch, Yreka Creek Ditch and the Upper Greenhorn Ditch, and all the claims—mining or agricultural—along the line of the contemplated flume, except that of Mr. Blake. The aggregate amount required for these purchases is about \$50,000. It is estimated that the cost of bringing the flume up to a point where it is believed it will pay its way and even a profit, including \$50,000 for the above specified purchases, will be about \$150,000. Of this amount S. F. capitalists will furnish \$130,000, if the remaining \$20,000 can be raised here. This was promised on the condition of course, that they find matters as represented by Burgess and Edgerton. After securing the \$20,000 to be raised here, they will be notified, when they will send a surveyor and gravel mining expert to make a survey of the ground to ascertain the amount of fall that can be obtained, and to prospect the dirt to ascertain its richness. Upon the report made by these persons, the S. F. capitalists will decide whether they will invest in the enterprise.

## Nevada.

### COPE DISTRICT.

**RAILROAD DISTRICT.**—Elko Ind. Aug. 12: A writer August 8th, from Railroad City, says: Our Kentucky really looks like a big ledge of milling ore, and shows as well as the Industry mine, which has a splendid, well developed ledge of four feet in width, and the finest ore you ever laid eyes on.

### ELY DISTRICT.

**BULLION.**—Ely Record, Aug. 10th: The bullion shipment for July amounts to 194 bars—\$306,469.43.

### EUREKA DISTRICT.

**CHAMPION MINE AT DIAMOND.**—Eureka Sentinel, Aug. 11th: We were presented, with a beautiful specimen of ore obtained at 100 feet deep in the Champion mine. It is valued at \$700 per ton. Two hundred and fifty tons now on the dumps, it is certain will exceed \$150 per ton. Those who have examined Diamond District speak very highly of it and prophecy for a very bright future.

**THE NEW FURNACE OF THE PHENIX COMPANY** will give to the market a larger amount of bullion, and of higher grade, than the old furnaces of the same size. The mines are continually yielding the richest ores and in quantity that will render the building of another furnace a necessity.

**IMPROVEMENT.**—One of the Buttercup Co. furnaces has been running for some days, since the improvement of the syphon was added. The Supt., Col. Robbins, says it saves all trouble from "sows" and clogging, and that the metal can be taken out regularly without trouble and labor of "barring" that has accompanied getting the metal from the furnace. In a few days the other furnaces will be running and the Buttercup Co. will use the ore that has for months been accumulating at their mines.

**GOOD PROSPECTS.**—Mary Ann series of mines, consisting of the Mary Ann, Peabody, Robert Lee and Red Jacket, on the west side of Prospect Hill, have for a long time past been lying idle, for the reason that a company is about to be formed to work the mines, with capital sufficient to prove them. Many assays, principally gold, of the Mary Ann, went over \$50,000 to the ton, and one assay was \$57,605. There are now about 50 tons of ore on the dump of high grade.

**MAGNOLIA MINES.**—Same of 8th: Six men are at work with the best prospects of success.

**FISH CREEK DISTRICT.**—Same of 6th: Specimens of ore from the Kate Kline ledge, by assay of D. Lundbom, shows \$882.82 in silver, and \$10.04 in gold—total \$892.86. H. Anderson and C. Fall, owners.

### HUMBOLDT.

**NEW FURNACE.**—Winnemucca Register, Aug. 12: The Phoenix S. M. Co. is erecting a new furnace.

**NEW MILL.**—S. F. parties have purchased a mill site below the Consolidated furnace, and purpose to erect 20 stamps immediately. The milling ores of this district are attracting attention from capitalists, and we shall not be surprised to see this vicinity lead all other places in a few months in the amount of silver bars produced, as it does now all other places on the continent in base bullion.

**LARGEST SALE IN THE DISTRICT.**—The valuable mining and landed property of Geddes & Bertrand, situated in Secret Cañon, has been sold to S. F. capitalists.

**ANOTHER SALE.**—It is stated that the Richmond M. Co. has disposed of all their property in this district to a co. in London.

**THE PHENIX S. M. Co.** of this place, has levied an assessment of 50 cents per share. Cause, new furnace and purchase of mines. Lots of ore at the dumps, however.

**BULLION.**—Austin Revue, Aug. 15: Paxton & Co. yesterday shipped to S. F., 4 bars from Citizens' mill, \$5,489.52, 341 pounds. Also 22 bars from the Canfield—\$14,151.52. W. F. & Co. shipped last month 20 bars—\$15,027.15, mostly from Belmont.

**INTRIGUE MINE.**—Work has been resumed on this mine situated at S. F. Cañon. The water is to be pumped out and hoisting works are to be erected at an early day.

**MORE ORE** is on the dumps on Lander Hill than ever before, reports recorder Craycroft. If outside ore continues to increase here it is doubtful if the two mills will be sufficient.

**BULLION.**—Unionville Silver State, Aug. 12th: The Arizona mine shipped since our last \$7,564.

**SALE.**—It is rumored that S. F. parties have bought the Arizona and Sheba mines.

### WASHOE.

**BULLION RECEIPTS.**—Virginia Enterprise, Aug. 9th: Last Saturday there was deposited at the Bank of California in this city, \$106,000 in silver bars; on Monday \$19,000; yesterday, (Crown Point Co.) \$29,000, making a total of \$154,000 for the past three days.

**NEW REDUCTION WORKS.**—S. Fountain, is drawing plans for the largest mill in the State, to be erected by the Union Mill Co. on Carson river, between Eureka and S. F. mills. It is to be running in 4 months. Area 200 ft. square, crushing capacity 175 tons per day. A turbine wheel of 240 horse power is being made 20 ft. fall. Some 12 large size will be used.

**GOLD HILL NEWS.** Aug. 12th: The new Ophir shaft is down 900 ft., and sinking at the rate of 20 feet per week, in favorable rock.

### WHITE PINE.

**BULLION.**—News, Aug. 5th: The total shipment for July, East, 122 bars—\$135,850.41; West, 18 bars—\$20,850.89; Total 140 bars—\$156,701.29. Shipment for week ending to day 31 bars, 2,690—\$41,058.30.

The International mill is running half force, for lack of water. A large tank is to be built to catch water, and serve to supply the other thirty stamps a part of the time. Two new boilers are to be added. The Applegarth springs will be brought into use soon, to supply water.

**NORTH AURORA** is still choked up with good ore, which is being hoisted to the surface as rapidly as circumstances will permit.

A CAVE in the South Aurora resulted in the death of Joseph Knight.

**EBERHARDT.**—The ore in the bottom of the prospect shaft is coming in, in a slightly increased quantity. Working 30 men.

**SOUTH AURORA.**—Still sinking the shaft in the Autumn chamber. Bottom of the shaft in ledge matter, with strong indications of ore. The three drifts from the main tunnel are also in ledge matter. Working 100 men.

**WARD BEECHER CONSOLIDATED.**—The ore body in the main chamber vastly improved since our last review. The new prospect shaft 100 feet north of the present workings, is down 105 feet, the bottom being in ore. A drift is being cut from this shaft, to strike the main ore channel. Have struck a body of ore at the northern extremity of the main workings, assaying \$800 per ton. Shipping daily 38 tons to the Manhattan mill. Only one class is made of the ore, average \$55 per ton. Working 65 men.

**O. H. TREASURE.**—Have ceased for a time the shipment of ore to the Big Smoky still shipping ore to the Swansea. Working 70 men.

**SILVER WAVE.**—Drifting has been commenced from the bottom of the prospect shaft. Hoisting a small quantity of ore, and expect soon to reach main ore channel. Working 15 men.

**POST-HOLE, SUMMIT AND NEVADA.**—Hoisting ore and shipping to Big Smoky mill. Mines gaining rapidly on the mill. Working 8 men.

**MAMMOTH.**—Good ore in the dumps, and improved ore in the drift from the main shaft.

**POSTAGE.**—Still working in a fine body of ore in the shaft. Will commence milling shortly.

**ST. JOHN DEL-REY.**—Getting out small quantity of good ore, and thoroughly prospecting the mine.

**NOONDAY.**—Cross-cutting the ledge at the 140 foot level. Will soon commence milling ore. Working 4 men.

**SILVER WEDGE.**—Drift from prospect shaft struck the ledge last Monday. Two feet of good ore appears in the drift dipping east.

**EAST SHEBOYGAN.**—Mine looking well. Working small forces and getting out ore.

**GEN. LEE.**—A rich strike was made in this mine one week since. A large body of good ore is disclosed on the east of the main ore chamber. There is a large amount of ore on the dumps, and everything in connection with the working of the mine bears a flattering appearance. Will mill ore soon.

**SUNNYSIDE.**—Situated on the south slope of Treasure Hill. The tunnel is now in a chamber of ore of a breast of 15 feet in width. New drift commenced, running east. Shipping ore to the Big Smoky mill.

**GREAT WESTERN.**—A force of men was put to work on this mine during the present week. The mine will be thoroughly prospected, and opened, and the prospect is flattering, for a rich and permanent mine.

**SILVER PLATE.**—A body of ore was struck during the present week, which it is estimated will work \$1,500 per ton.

Taking out ore and shipping to Big Smoky. Working 4 men.

**BASE METAL MINES.**—Trench. —Now shipping ore to the Big Smoky mill which averages, pulp assay, close on to \$400 per ton... Caroline. —A lot of ore worked this week averaged \$800 per ton... Bald Eagle—Hoisting ore for milling. Working 5 men... Enterprise. —Ore assaying on an average of \$108 per ton. Working 3 men, and will soon increase the force... C. T. Fay. —175 tons of fine ore on the dumps. Working 8 men.

## Colorado.

**CLEAR CREEK Co.**—Cor. Central City Register Aug. 9: The lodes worked by the Baker Co. are yielding a partial supply for their cylinders. The Baker mine is working 14 miners. The mill is running.

**THE ARRY FURNACE** is a splendid success. Assays so far show that from 77 to 91 per cent. of the silver in heavy ores, and as high as 98 per cent. in light ones, is chloridized.

**MINING AT EMPIRE.**—The Callery Bros. have reached a good paying vein on the Cashier Lode, on Codove mountains, near Lower Empire. An adit has been driven in on the vein 60 feet, showing in the face eight inches of first class ore that averages five ozs. of gold and 13 ozs. of silver, per ton, and 12 inches of second class ore.

**BOULDER Co.**—The recent discovery of a silver vein of great reputed richness, is again calling attention to Gold Hill. Arrangements are perfected for the cupola furnace at the Frenchman's ranch on the North Boulder. For a supply of ore reference is made to the "Blue Bird," the "White Cloud," the "Western Slope," and the "Mountain Witch," all near, and developments the most encouraging progressing. The Caribon mine never before looked so well as at the present time. The main shaft is now 195 feet deep. In the bottom it shows 3 feet of rich black sulphurets, wider and richer than at any point above.

**HARPER'S claim** on the California, at a depth of 370 feet, is showing splendidly. From the shaft west a drift has been driven 44 feet, disclosing a fine vein of smelting ore in the breast—12 inches in width—and about three feet of stamp-mill ore. In the east drift, a crevice of first-class ore three feet in width is the most interesting feature. The first-class ore in the back-stopes over both drifts, averages two feet in thickness the entire length of the claim, with a crevice of second-class ore that varies in width from three to five feet. The first-class smelting ore sells at from \$100 to \$110 per ton; the second class is \$45 per ton, and the third-class under stamps yields from five to seven ounces per cord.

**IN CALIFORNIA GULCH** the stamp mill is steadily at work on Printer Boy ore, which pays ten ozs. per cord. Breeze & Co. will soon put up



two arastras. Mr. Dyer has two on Iowa gulch, and Dickerson & Co. have three about ready to run.

THE STRACUSE is producing considerable ore, some rated at \$500 per ton.

Forty sacks of ore from the Western Slope lode assayed, showed silver at the rate of \$213 per ton.

DAYTON, on Middle Boulder Creek, Grand Island district, the new mining town, is growing rapidly. Machinery is arriving for Cutter's reduction works.

A GREAT STRIKE is reported at the bottom of Caribou's main shaft, 42 inches of ore, full of sulphurets of silver and native silver.

CARIBOU.—Golden Transcript, Aug. 9:—We have reports from Caribou that among the best mines in that district are the "Western Slope," and the "Blue Bird." Three tons of ore from near the surface netted them \$230 per ton. The shaft on the Western Slope is 25 feet down, and that upon the Blue Bird over 15 feet.

From the Caribou Post, Aug. 5th:—Work is continued on the Mountain Witch, near the French boys' ranch, and reported opening splendidly. The whole crevice is six feet in width, and the seam of pure, hard mineral, is constantly increasing in thickness as depth is attained.

### Idaho.

BULLION.—W. F. & Co. shipped from here the past week, 9 bars of bullion \$11,459.60.

MAHOGANY.—Silver City *Analanche*, Aug. 9th: A 3 ft., ledge has been struck in the lower works of the Mahogany. Free gold and silver are discernible throughout the entire width. Stockholders jubilant.

FRENCH CREEK.—Boise, *Statesman*, Aug. 5th: Small & Co. are taking good pay, say \$12 to \$15 per day to the hand. Many Chinamen are working on the creek.

At Cow Creek, Manlie and Lawson have made a good stake and started for the Old States, having sold their claims to Armstrong & Co.

GRANITE CREEK.—Idaho *World*, Aug. 5th: John Eissler has at length struck his ledge after running his tunnel 465 ft. The vein is now over five feet wide, with both walls solid and well defined, and the ore thoroughly sprinkled with free gold. It is regarded as about the richest ledge ever discovered in this county, as it doubtless is the widest, at least of the gold ledges.

New discoveries in quartz are being made, and Granite Creek may prove the banner quartz mining camp in the Territory.

### Montana.

BOULDER DIGGINGS.—Helena *Gazette* Aug. 7th: The Boulder Bar diggings, in Jefferson county have proved to be good. Mining is profitable on this bar, and promises fair remuneration.

BOHM'S SILVER WORKS.—At Argenta are in splendid order, running night and day, and producing 1½ to 2 tons per day of matt.

NEW LEDGE.—Judge Clancy, has struck a rich and valuable ledge at Radersburg, another proof of its value as a great mining camp.

SLICES ROBBED.—Mr. Poor and his partner, on Boulder Bar had their sluice-boxes robbed one day last week, of about \$500 in amalgam. A suspected company of Chinamen have "vamosed."

RED MOUNTAIN.—There are now four or five arastras running on rock from the Nevins and Only Chance lodes, night and day. The yield is immense, and the owners have splendid fortunes in prospect. Moose creek, two miles from Red Mountain city, best places in the Territory, with the miners profitably engaged in taking out gold worth \$20 per ounce. The arastra of Dickey and Parks, is grinding on good gold quartz procured on that side of the range out of a vein of great thickness; the rock pays \$20 per ton, and they crush three tons per day.

A TIN MINE.—Is reported as having been discovered near Helena. The ore is 95 per cent. fine metal, and is found from a point several miles up Lump Gulch, to Dana's Bar.

YAMHILL.—Dear Lodge City *Independent*, Aug. 4th: Kelley, Brown & Thornton cleaned up last week over \$800; this was from new ground on Gold Hill. Fagan, Brady & Co., have been making large clean-ups all summer. There are ten hydraulics now running on the Bar and they will have an abundance of water this season.

John McGrath, of the American Bar diggings, below Brundy's Mill, says that the miners there have commenced washing up, with good results. He sold some 40 oz. of dust, at Donnell & Co.'s Bank to-day, for \$19.50 per oz.

LINCOLN.—Helena *Herald*, Aug. 3d: Nearly all the claims worked are paying, some over wages, while some go as high as \$40 to the hand per day. There are five

whims running, and some ground sluicing being done.

NEW LEDGE.—We were yesterday shown at the office of Charles Rmley, assayer, a gold brick weighing 126.85 ozs., 378 fine, and possessing a gross value of \$2,302.31, the result of fifty-seven tons of rock from the Left Hand Ledge, Radersburg District.

PHILIPSBURG.—Cor. New *North West* Aug. 5th: A train of 16 wagons left Philipshurg to day, loaded with nearly 50,000 pounds of crushed Spockled Trout ore, delivered to the First National bank of Helena.

### Utah.

BULLION.—Salt Lake *Tribune*, Aug. 12th: W. F. & Co., shipped to N. Y., from their office in this city yesterday, 7 bars, from the works of Raymond & Ely at Piocho, Nev.,—\$16,335.52; also from the Meadow Valley Works 9 bars, \$12,133.07.

UTAH M. & T. Co.—This Co. has a location in Little Cottonwood, on the Emma Hill, which is said to be one of the best locations for a tunnel in the district. They are in 140 ft. Indications are favorable. The drift is intended to cut the Emma, Savage and Flagstaff veins, and other bodies of ore. Have some \$6,000 in treasure; K. Y. Anderson supt.

CAMP FLOYD.—Yesterday, A. C. Tichenor of Camp Floyd District, showed us a very beautiful specimen of cinnabar from the Bowers ledge, situated between the Sparrow Hawk and Silver Cloud mines. Shaft 40 feet down and displays a breast of ore 30 ft. The ledge runs in a north and south direction and crops out. Assays give 10 to 27 per cent. mineral.

The following is a list of the principal silver mines in the district as given by Mr. Tichenor: Sparrow Hawk, Silver Cloud, Union, Golden Chariot, Silver Sceptre, Queen of the West, Silver Serpent, Grecian Bend, Mormon Chief, Waterfall, Benton and Robert Emmet. The ore of this district is all adapted to the milling treatment and varies in its assay value all the way from \$100 to \$700 to the ton.

A PROMISING "LITTLE FRED."—Wallace & Murdoch, while on a visit to Silver Springs, Big Cottonwood Canon, discovered one of the most promising ledges that has been found in Silver Fork or vicinity. A wide, well-defined crevice, carrying 30 to 36 inches of rich ochre interspersed with iron, is now in sight, and the vein has every indication of yielding within a few days argentiferous ore in large quantity. The assured early erection of the smelting works at Silver Springs, will favorably affect all mines in that district.

LITTLE COTTONWOOD MINES.—The Montezuma and Savage are classed by experts among the extraordinary. The Flagstaff mine, the second in the Territory, is looking even better than was anticipated, particularly in the new drifts. Little Cottonwood bids fair to remain in the front rank of mineral districts as to productiveness and in the value of its ores.

BINGHAM CANON.—Cor. of the Same: The Yosemite mine owned by May & Merrill, has a shaft and a clearly defined fissure vein four feet with ore assaying about 60 per cent. lead and 20 to 30 ounces silver per ton. The Winnemucca mine worked by Daggart & Bristol has been explored to the depth of 318 feet, on the varying dips of the lode reaching a vertical depth of over 200 ft. They have a vein of ore 17 feet in thickness, ranging in value from fifty to sixty ounces in silver per ton.

The Kelsey Tunnel Co. are running to reach eight mineral veins that they own, all within 1,000 ft. of the face of the tunnel. Have crossed two, one being over nine feet. This tunnel is now over 250 ft. in length, reaching a vertical depth of over 300 feet. The Fliess and the Miner's Home, give promise of becoming paying institutions, as the veins are very large and the ore of good grade.

Howard & Co. have completed a water ditch four miles long and put up a hydraulic power. Peter Clays is opening the gulch. The shaft is now down some 70 feet and the engine and pumps in course of erection. He hopes to reach the bed-rock in the course of three weeks.

Lion Hill District which is far famed and immensely rich, has its reputation enhanced by every day's development. Gigantic tunnel operations are commenced.

MESSRS. DEWEY & Co.—Gentlemen: Your favor of the 7th inst. is at hand with the patent for my anti-incrustator. Many thanks for your promptness and business-like manner of conducting the matter to a successful result.

Yours truly,

W. T. RICKARD.

Monitor, Alpine Co. Cal., Aug. 10, 1871.

### Mining Stock Market.

[San Francisco Stock and Exchange Board.]

THURSDAY EVE., AUG. 17, 1871.

The mining stock market has been characterized by a very fair degree of activity since our previous reference, and, as a general thing, prices show an upward tendency. It may be noted that stocks did not show any violent fluctuations, apparently manifesting a gradual and healthy appreciation. We notice that the Chairman of one of the successful English mining companies located in White Pine, at a recent meeting in London, made some very sensible remarks upon the numerous offerings of mining properties in that market. While some of these properties are undoubtedly "wild cat," others are recommended by assays showing a very high grade of ore, the parties never intimating that such ores are exceedingly rebellious, and, therefore, cannot be profitably reduced by the ordinary methods in vogue. We very much fear that these numerous and indiscriminate offers will have a tendency to prevent English capital from entering into such mining enterprises on this coast that have real substantial merit, and only need the careful assistance so proverbial among English capitalists. Let us offer nothing but good mines, and the needed help to develop them will not be wanting.

The sales in the San Francisco Stock Board, from August 10th to the 16th, inclusive, have been as follows:

90 shares Alpha at \$8 25/100	55 shares Amador at \$25 25/100	2315 shares Belcher at \$22 1/2 25/100	3565 shares Buckeye at \$1 5/8 25/100	2535 shares Caledonia at \$1 3/4 25/100	6443 shares Chollar-Potosi at \$30 1/2 25/100	73 shares Crown Point at \$30 1/2 25/100	1295 shares Eureka at \$1 1/2 25/100	4755 shares Eureka Consolidated at \$16 1/2 75 1/100	487 shares Gould & Curry at \$102 50/100	1710 shares Golden Chariot at \$17 1/2 25/100	450 shares Hale & Norcross at \$10 1/2 25/100	35 shares Imperial at \$29 25/100	371 shares Kentuck at \$106 1/2 100 50/100	1070 shares Ida Elmore at \$10 1/2 25/100	80 shares Lady Bryan at \$3 25/100	4335 shares Meadow Valley at \$22 1/2 25/100	2875 shares Mammoth at \$25 25/100	1550 shares Malopago at \$10 50/100	400 shares Monitor and Magnet at \$1 5/8 25/100	530 shares Noonday at \$3 1/2 25/100	2100 shares Ophir's Hidden Treasure at \$9 50/100	420 shares Overman at \$6 1/2 25/100	10,034 shares Ophir at \$13 1/2 25/100	2245 shares Potosi at \$10 1/2 25/100	7375 shares Phoenix at \$2 1/2 25/100	3610 shares Raymond & Ely at \$12 1/2 25/100	1234 shares Savage at \$34 1/2 25/100	3885 shares Succor at \$1 75/100	5500 shares Yellow Jacket at \$1 50/100	430 shares Consolidated Virginia at \$7 50/100	320 shares Segregated Belcher at \$8 25/100	155 shares Sierra Nevada at \$3 1/2 25/100	100 shares Daney at \$3 1/2 25/100	675 shares Yule Gravel at \$11 25/100	200 shares Marble Falls at \$1 25/100	500 shares St. Patrick at \$2 1/2 25/100	100 shares Pioneer Land and Loan Co. at \$102 1/2 100/100
Amount of sales.....\$2,013,451.																																					

CHOLLAR-POTOSI—sold to a fair extent at advancing rates. They extracted 1,020 tons of ore during the week ending August 12th, valued at \$50 20 per ton, against 1,067 tons valued at \$43 37 per ton the previous week. CROWN POINT continues quiet. During the week closing August 13th, 1,427½ tons of ore were extracted, valued at \$30 per ton, against 1,435½ tons valued at \$32 50 per ton the previous week. In the 1,100-level the good ore is about twenty feet wide, while the balance of the vein is composed of quartz and very low-grade ore. The bullion yield for July amounts to \$199,376. HALE & NORCROSS shows a small advance under meagre sales. For the week ending August 12th, 264½ tons of ore were taken out. SAVAGE has been inactive. They extracted 546½ tons of ore for the week ending August 13th, showing an assay value of \$28 21 per ton. The bullion receipts for July aggregate \$89,965. KENTUCK receipts for July, \$20,436. GOLDEN CHARIOT receipts for July, \$45,156. RAYMOND & ELY is gaining much favor under quite large sales. The fiscal month ending August 9th is credited with a bullion product of \$92,000, being the yield of 1,027 tons of ore. A dividend of \$1 per share was paid on the 17th inst. BELCHER commands high figures. On the 14th, a clay stratum, two feet thick, running on an angle of 37 degrees, was struck in the incline. It is of good character, and has some pay in it. In the bottom of the incline some very good quartz has been found. EUREKA CONSOLIDATED will pay a dividend of \$1 per share on the 21st.

### MINING STOCK QUOTATIONS, AUGUST 17, 1871.

CALIFORNIA.		IDAHO.	
Amador.....	\$25 1/2	St. Patrick.....	\$25 1/2
Eureka.....	17 1/2	Yule Gravel.....	10 1/2
WASHINGTON.		UTAH.	
Alpha Con.....	7 1/2	Hale & Norcross.....	\$98 1/2
Belcher.....	22 1/2	Imperial.....	21 1/2
Caledonia.....	1 3/4	Jules.....	11 1/2
Chollar-Potosi.....	29 1/2	Kentuck.....	113
Confidence.....	7	Ophir.....	24
Con. Virginia.....	7	Overman.....	6 1/2
Crown Point.....	25 1/2	Savage.....	33 1/2
Daney.....	4	Seg. Belcher.....	8 1/4
Empire.....	—	Sierra Nevada.....	16
Eschschuer.....	—	Succor.....	7
Gold Hill M.C.....	—	Yellow Jacket.....	4 1/2
Gould & Curry.....	109		

WHITE PINE.		IDAHO.	
Con. Sil'r W'ge.....	—	Silver Wagon.....	—
Mammoth.....	20 1/2	General Lee.....	30 1/2
No. 1.....	4 1/2		
Orig. Hidden Tr.....	8 1/2		
FLY DISTRICT.		EUREKA DISTRICT.	
Golden Chariot.....	22 1/2	Mahogany.....	\$13 1/2
Ida Elmore.....	8 1/2		
		Phanix.....	1 1/4

### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS		DAY	
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENT, OF SALE		
Buckeye, Lyon Co., Nev., July 19, \$1.....	Aug. 22—Sept. 8		
Cherokee Flat, G. Co., Aug. 12, \$2.50.....	Sept. 13—Sept. 20		
Columbus M. & M. Co., Aug. 8, \$1.....	Sept. 12—Sept. 30		
Cons. Vir. Stores Co., Nev., Aug. 1, \$1.50.....	Sept. 5—Sept. 25		
Hale & Norcross, Va. City, June 29, \$10.....	Aug. 1—Aug. 31		
Highland S. M. Co., Nev., July 19, 10c.....	Sept. 1—Sept. 15		
Jeincent Lubricator Co., Aug. 1, 50c.....	Sept. 7—Sept. 28		
Kincaid Flat M. Co., Tu. Co., Aug. 4, \$2.....	Sept. 11—Oct. 2		
Mahogany, Owyhee Co., I. T., Jan. 22, \$2.....	Aug. 10—Aug. 28		
Marble Falls, Nye Co., Nev., July 12, 50c.....	Aug. 15—Sept. 15		
Meadow Valley Ex. July 8, \$1.....	Aug. 14—Sept. 11		
Mina Rica M. Co., Placer, Aug. 8, 20c.....	Sept. 11—Oct. 3		
North American Con. M. Co., J. L. 31, 20c.....	Sept. 5—Sept. 30		
Nevada Butte, Battle Mt., Nev. J. L. 31, 1c.....	Aug. 26—Sept. 19		
Nevada Land & Min. Co., July 25, 4c.....	Aug. 29—Sept. 20		
Noonday, White Pine, July 13, 20c.....	Aug. 21—Sept. 18		
Opbir, Va. City, July 12, \$5.....	Aug. 16—Sept. 8		
O. H. Treasure, July 6, \$2.....	Sept. 7—Sept. 27		
Ophir C. S. & G. M. Co., Aug. 2, 75c.....	Sept. 4—Sept. 25		
Overman, Goshute Co., July 25, \$2.....	Aug. 31—Sept. 18		
Phanix, Lander Co., Nev., July 24, 50c.....	Aug. 26—Sept. 19		
Seg. Belcher, G. H., July 20, \$3.....	Aug. 23—Sept. 12		
Shipley, Placer Co., Aug. 2, \$2.....	Sept. 6—Sept. 27		
St. Patrick, Ophir Dist., Aug. 16, 50c.....	Sept. 20—Oct. 10		
Sumner, Kern Co., June 14, \$5.....	Aug. 15—Aug. 30		
Tecumseh G. S. & C. M. Co., J. L. 28, \$5.....	Sept. 4—Sept. 28		
Tallulah, Humboldt Co., Nev., July 27, \$1.....	Aug. 28—Sept. 19		
Union, M. & M. Co., W. P., July 25, 25c.....	Sept. 2—Sept. 20		

### MEETINGS TO BE HELD.

Bellevue M. Co. ....Annual Meeting, Sept. 14  
I. X. L. M. Co. ....Annual Meeting, Sept. 14  
Mohawk & Montreal. ....Adjourned Meeting, Aug. 22  
Virtue. ....Annual Meeting, Sept. 4

### LATEST DIVIDENDS—(Within Three Months).

Chollar-Potosi, \$2.....	Payable July 11
Chollar Potosi, \$5.....	Payable May 20
Crown Point \$10.....	Payable June 10
Eureka (Cal), \$1.....	Payable July 1
Eureka Co., \$1.....	Payable Sept. 7
Meadow Valley.....	Payable July 15
Natoma, div. 1 per cent. ....	Payable Aug. 5
Overman.....	Annual Meeting, July 13
Redding, 1 per cent. ....	Payable Aug. 1
Yellow Jacket, \$2.....	Payable July 10
Yule Gravel, 50 cts. ....	Payable Aug. 4

\*Advertised in this journal.

### Wool Prices in New York.

BROWN'S CIRCULAR, August, 1871.	
DOMESTIC FLEECES.	
NEW YORK, MICHIGAN, INDIANA AND WISCONSIN.	
Choice Set'd Saxony Fl. @ 1/4 Quarter-lb Fleece.....	56 1/2
Saxony Fleece.....	56 1/2
3/4 and Full-lb Merino 56/60 Combing Fleece.....	53 1/2
Half-lb Fleece.....	50 1/2
OHIO, PENNSYLVANIA AND VIRGINIA.	
Choice Set'd Saxony Fl. 70/75 Quarter-lb Fleece.....	60 1/2
Saxony Fleece.....	59 1/2
3/4 and Full-lb Merino 60/65 Combing Fleece.....	56 1/2
Half-lb Fleece.....	53 1/2
IOWA, VERMONT AND ILLINOIS.	
3/4 and Full-lb Merino 52/57 Quarter-lb Fleece.....	50 1/2
Half-lb Fleece.....	47 1/2
MISSOURI, KENTUCKY AND TENNESSEE.	
Washed Fleece.....	58 1/2
Unwashed Fleece.....	47 1/2
TUB-WASHED WOOL.	
Choice.....	70 1/2
Fair.....	65 1/2
PULLED WOOL.	
N. Y. City extra Pulled.....	56 1/2
N. Y. City super Pulled.....	56 1/2
W. Va. City, 1 Pulled.....	47 1/2
Lamb's Wool.....	54 1/2
Western super and ext 54 1/2	
CALIFORNIA.	
Spring Clip, fine.....	40 1/2
Spring Clip, medium.....	40 1/2
Levin, 12 and 14 Kil., 1/2 doz.....	46 1/2
Full Clip, A 1.....	36 1/2
TEXAS.	
Fine.....	40 1/2
Medium.....	40 1/2
Low.....	36 1/2
FOREIGN WOOLS.	
Cape of Good Hope.....	40 1/2
Mestiza Pulled, N. & XX 70/75 Buenos Ayres Mestiza 31 1/2	
Mestiza Pulled, low gds. 65/70	

### Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, August 17.	
SOLE LEATHER.—Eastern shippers still keep the market firm and the demand good.	
City Tanned Leather, @ B.....	26 1/2
Santa Cruz Leather, @ B.....	26 1/2
Country Leather, @ B.....	25 1/2
Leading French stocks have declined slightly. California kips are higher and in demand.	
French Kip, @ B.....	58 1/2
Jodot, 11 to 12 Kil., per doz.....	60 1/2
Jodot, second choice, 11 to 15 Kil., @ doz.....	60 1/2
Lemons, 16 to 18 Kil., @ doz.....	60 1/2
Levin, 12 and 14 Kil., per doz.....	60 1/2
Cornellian, 16 Kil., per doz.....	72 1/2
Cornellian, 12 to 14 Kil., per doz.....	60 1/2
Merier Calf, 16 Kil., per doz.....	65 1/2
Robert Calf, 7 and 8 Kil.....	35 1/2
Common French Calf Skins, @ doz.....	35 1/2
French Kip, @ B.....	1 10 1/2
California Kip, @ doz.....	60 1/2
Eastern Wheel Stuffed Calf, @ B.....	80 1/2
Eastern Henc Stuffed Calf, @ B.....	1 10 1/2
Eastern Calf for Backs, @ B.....	1 10 1/2
Sheep Roams for Topping, all colors, @ doz.....	10 1/2
Sheep Roams for Linings, @ doz.....	1 10 1/2
Western Russell Sheep Linings.....	1 10 1/2
Best Jodot Calf Boot Legs, @ pair.....	5 25
Good French Calf Boot Legs, @ pair.....	4 50
French Calf Boot Legs, @ pair.....	4 50
Harness Leather, @ B.....	30 1/2
Fair Bridle Leather, @ doz.....	48 1/2
Skirting Leather, @ B.....	30 1/2
Woolen Leather, @ doz.....	30 1/2
Buff Leather, @ foot.....	17 1/2
Wax Side Leather, @ foot.....	18 1/2

WOODLAND, July 14, 1871.

DEWEY & Co.—Gents: I received the patent paper upon my improved wagon all right, and I return thanks for the promptness with which you pushed it through. Respectfully,

C. ELLIOTT.



# Rice Culture—Leveeing, Ditching, Inundating, Etc.

CONCLUDED.

I here below represent the position of the trunk with a small part of the river, trunk-dock and ditch to the field as seen looking vertically down upon them.

The process I have described implies great experience and labor in bringing a rice plantation into cultivation.

There are however great variations in practice, where circumstances permit, tending greatly to diminish both the cost of improvement of the land and its culture.

The cultivation of an inland swamp plantation much resembles that of tide swamp, except that having no command of tide waters, the upper part of the swamp is used as a reservoir for water, which is kept there by a heavy bank made across the lower end of the reservoir, and the lower part of the swamp forms the rice field. But I have never cultivated inland swamp.

I have of course omitted many minutiae, aiming at pointing out what is essential and peculiar to the cultivation of rice here.

The bank and ditch around the land being finished, and the trunk in its place, or bed, the land can be kept dry, and the next step is to clear the land by denuding it of its natural growth. I need not state the mode of doing this. Clearing new lands for any kind of culture varies according to the crop to be cultivated. Much, in fact most of the rice land in South Carolina was originally heavy timbered, and cost much labor to clear. If on flooding the land which has been taken in and surrounded with bank and ditch, it is found to be so uneven that some large parts are more than a foot lower than the rest, it is desirable to divide it into two or more separate fields, putting the lower portion of the land in one field, and the higher portion in a separate field, as far as such a separation is practicable. The highest alluvial land is generally near the river, and the lower further back from it. (See the diagram of land divided into four rice fields.) The fields are separated from each other by a bank, which need not be as large as the large bank next to the river, and a ditch always runs around each field 15 or 20 feet distant from, and parallel to the banks. Each field has a trunk to itself. After the land is cleared it receives a further draining by cutting small ditches across the field from the ditch on one side of the field to the ditch on the other side. These small ditches are called "quarter drains," they are straight, parallel to each other, usually about 105 feet apart, and 18 inches wide by two and a half or three feet deep. When the land has been several years cultivated it will need more draining, and then two more quarter drains, dividing the field into long strips of land or heds, about 35 feet wide.

## Cultivation and Management of the Crop.

On an old rice field the land is usually ploughed, or dug with a hoe, in winter, and harrowed, or chopped fine with a hoe, towards spring. On absolutely new land this is not necessary, and if the land has many stumps and roots remaining on it, it cannot be easily done.

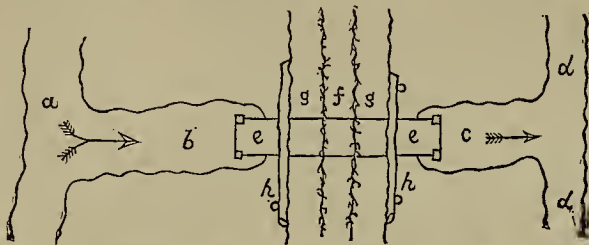
In preparing to sow the seed the land is drilled or trenched, on old lands sometimes with a trench plough, but usually by hand. The laborer uses a narrow hoe, about eight inches long and three or four wide at the edge, and steps backward in doing his work. In order that the drills or trenches might be straight, several rows of four or five stakes are set up across the field, the rows of stakes being five feet apart, a skillful laborer makes a trench in a line with each row of stakes, and less skillful laborers make three trenches between every two made by the first. As the work is finished in one part of the field, the stakes are shifted over to the next part until the whole field is trenched with straight parallel drills fifteen inches apart. Four hands (men) trench about three acres. The trenches are about two inches deep.

The sowing of the crop is begun after the middle of March, and continued at intervals, dependent on the spring tides, until the middle or end of May. One or more fields being trenched, you begin to sow the grain some days before the last spring tides in March, or the first of April. The seed is sown by hand, about two and a half bushels to the acre, as equally distributed along the trench as possible. Each sower (usually a woman) sows two to two and a quarter acres. Three hands follow her, covering the seeds lightly with soil thrown out in making the trench. The laborers in covering the seed, use a simple tool called a "cover-board," made of a piece of inch board, sixteen or eighteen inches long, four or five

wide, beveled at the sides and ends, and with a large auger hole in the middle to receive one end of handle five feet long. In use it is intermediate between a hoe and a rake—the light soil is drawn obliquely into the trench to cover the seed, and the clods, if any, are crushed by a smart blow with it.

As soon as a field is sown and covered, the outer door of the trunk is opened and the tide let in and the field flooded one foot or more deep. The water is kept there from three to six days—the warmer the weather the shorter the time. While the water is on the field, all the trash which floats and drifts to the bank is raked off and heaped on the bank or outside of it. A very few hands can do this while the rest are at work in another field. This flooding is called the "sprout flow," and when the water is drawn off the grains have

As soon as the field is thoroughly dry, it should be hoed again. This time it is dug as deep as practicable with a hoe about eight inches long, but not more than six inches wide, through each space or alley between the rows of rice. In digging, the sod should be turned over, and after the laborer has hoed through his task—one half acre—he goes over it again and pulls up any long grass left in the rows of rice. The field is now kept as dry as possible for twenty-two or twenty-three days after the long water, when it should be hoed again, but very shallow and superficial hoeing, so as not to injure the roots of the rice, but merely to level the clods of the former digging, and destroy the young grass. The task is half an acre, and any long grass is pulled by hand out of the rice rows as before. A day or two after the "lay by water" is put on. That is, the field is flooded to



VERTICAL SECTION OF BANK, TRUNK-DOCKS, ETC.

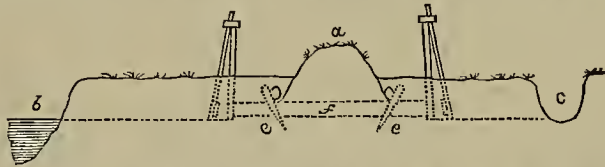
a—River. b—Outer Trunk-Dock. c—Inner Trunk-Dock. d—Ditch around Rice Field. e—Trunk. f—Level top of the Bank. g—Sloping sides of the Bank. h—Logs, called "string-pieces," laid across the trunk and fastened by stakes, to keep the trunk firmly in its place, and to support the earth at foot of bank.

begun to germinate. The field is then kept dry a week or more, until you can see the fine points of the rice plant coming out of the ground, visible for thirty feet along the trench. This is called the "needle state" of the rice. The field is then flooded. This is called the "point flow," and is kept on, say one foot deep, from four to eight days—the warmer the shorter the time. This flowing helps to destroy the young grass which has begun to grow, but if kept on too long is apt to stretch and weaken the rice, so that it falls down when the water is taken off. The field is then kept as dry as possible until the rice is about five inches high and has four leaves. It is then hoed for the first time. The laborer using a hoe six or seven inches wide, gives a light and very shallow digging to the surface of the land between the rows of rice, stepping forward as he works, superficially stirring the soil and cutting up any grass growing there. After hoeing through his task, he goes carefully over it, and with his hand or a short stick removes any clods which may have fallen on the rice plants. After two days, if the weather be dry, allowing that time for the sun to kill the grass which has been dug up by the hoe, or immediately if

about the same depth as marked on the trunk post, or other convenient place, lower or higher, according to the growth of the rice. Care must be taken that when the rice is "in belly," that is when the ear begins to form in the plant, that the water should not get above the swollen or enlarged part. When the plant has shot out its ear the water may be deepened, but never to beyond eighteen or twenty inches.

During this flow, which generally continues more than two months, when the rice has got strong enough to stand without the support of the water, the water is changed as often as you conveniently can. That is at every spring tide you run the water off, being certain that the next tide will be high enough to enable you to replace it with fresh water.

The crop is kept flowed this way, without any further labor, if it has been well weeded, until the rice is nearly ripe. Rice sown on the 1st of April, and well cultivated and judiciously watered, is usually ripe by the 1st of September. Sown the 15th of May it will be ripe by the end of September. The grains are now yellow, plump and pretty hard, except those toward the lower end of the ear. The water



Profile of Cross Section of Part of River, Outer Margin, Bank over the Trunk, Inner Margin and Ditch.

a—Bank made over the Trunk. b—River. c—Ditch. d—Pins to secure Logs. e—Trunk.

the weather be wet, the field is again flooded. This is called the "long water." The field is deeply flowed, overtopping the rice for three or four days, and all the trash which drifts to the bank raked off as before. The water is then slackened down to about six inches deep on the general level of the field. A mark or notch is cut on the trunk post or elsewhere, and the water is kept as nearly at that height as practicable for twelve or twenty-three days, according to the quality of the land, the heavy or stiff lands requiring the longest water. The water should not be turned off at the end of fifteen days, as drying at that period is known to injure the rice. If not turned off at twelve days, it must be kept on several days over fifteen. The water is then gradually slackened off in the course of a day or two, for the rice in the lower parts of the field having been stretched and weakened by the greater depth of water there, is apt to fall down on the water being suddenly drawn off. This shows the importance of a rice field being as level as possible, otherwise the rice in the lower spots is materially injured, and in the high places the grass is not destroyed by the water. During this flow, what grass has not escaped the hoe, and was too old to be killed by the water has been growing rapidly. It is desirable, if you have time, to pull it up by hand out of the rows of rice, before or at the time you are slackening the water off the field.

should now be turned off, and the field allowed to dry for three or four days. The rice is then cut with a sickle, and laid for one or two days on the stubble, which is usually left from fourteen to eighteen inches long. It is then tied into sheaves and stacked in cocks in the field for a few days, or carried at once to the barnyard and put up in small stacks until thoroughly cured. Care must be taken that it is not tied into sheaves or stacked while damp. But I need not further particularize the mode of treating it, as it is much the same as with other small grain crops.

Without going further into detail, I will merely state that after a rice plantation is taken in and ready for cultivation, it is found here that from six to eight acres can be cultivated to the hand, the hands being the men and women of a gang of negroes, who are neither too young or too old to be efficient laborers.

On new lands of good quality, well cultivated, the crop is heavy, yielding fifty-five, sixty, or seventy bushels to the acre. On old lands, which have been cultivated in rice for fifty years or more, the yield varies from fifty to forty-five, down to thirty bushels per acre, according to the quality of the soil. On a plantation with 300 acres rice land, the 300 acres may be divided into 15 or 20 fields, and there are often 50 hands, negroes, men and women, who with children and old people will make more than 100.

THE TABLES TURNED.—There was a time when some considerable alarm was felt, on account of the earthquakes here; but if we are to credit the Eastern papers, the earthquakes, tornadoes and thunder storms in the Atlantic States are now so severe that Californians may well hesitate about going East, without first getting their lives insured, for the benefit of the friends they leave behind. The loss of property and life at a single tornado at the East has exceeded the total casualties of all the earthquakes on this coast since the memory of "the oldest inhabitant."

## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

#### FOR THE WEEK ENDING JULY 25TH.

PARLOR-SKATE.—Chris. Raitz, San Francisco, Cal.  
FLOW.—Montgomery P. Rose, Napa, Cal.  
FURNACE FOR ROASTING ORES.—Stephen F. Amher, Monitor, Cal.  
DESULPHURIZING AND TREATING ORES.—John W. Bailey, Hamilton, Nev.  
POTATO-DIGGER.—Robert A. Haw, Bucksport, Cal.

GATE.—Edmund Higgins, Sacramento, Cal.  
ELASTIC TIRE FOR TRACTION-ENGINES.—Oliver Hyde, Oakland, Cal.

FURNACE FOR ROASTING ORES.—Richard F. Knox and Joseph Osborn, San Francisco, Cal.

COMPOUND FOR PREVENTING INCRUSTATIONS IN STEAM-BOILERS.—William T. Rickard, New Monitor, Cal.

MACHINE FOR MAKING BLIND-SLATS.—Paul Schumacher, San Francisco, Cal.

MACHINE FOR TURNING SPIRAL MOLDINGS.—Edward A. Stockton, San Francisco, Cal.

#### FOR THE WEEK ENDING AUGUST 1.

FEED-CUTTER.—Charles R. Donner, Sonoma, Cal.

CARPET-STRETCHER.—Samuel Elliott, Sonoma, Cal.

TOOL FOR ROUNDING LEATHER.—Lo Roy A. Swett, San Francisco, Cal.

SLOP-HOPPER.—John G. Iis, San Francisco, Cal.

PARLOR SKATE.—David Kerr and Asa E. Hovey, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

LOTTERY SHARKS are increasing beyond all precedent. California seems to be regarded as choice subjects for their "experiments," and our State a fine one for "gulls." Its reputation for wholesale lotteries has gone forth, and the tidal wave is returning. Probably \$100,000 has been spent for advertising alone, here, during the year past. In a single week in July over fifteen hundred thousand lottery tickets were printed by one firm. We verily believe that the gift (lottery) schemes have done more to fasten the prevailing dull times on our community than our dry seasons, or any other one cause. The New York gambling (not to say thieving) concern (that "refers" to the Nassau National Bank for its respectability,) will not be called upon to "honor" our draft "on receipt of bill and paper containing first insertion" of advertisement.—No, not for us!

CALIFORNIA BIRDS.—In California there are 18 or 20 native species of birds, more or less noted as songsters, and some of the species have many local varieties. The erroneous notion that the State was meagre in bird life, and especially singing birds, arose from the fact that the early routes of travel lay chiefly over nearly treeless plains, where few birds remain in the long dry season.

TITANIC ORE.—At the last meeting of the metal and coal trades at Swansea, a sample of titanic ore was exhibited, containing a very large percentage of titanium. An analysis gave the following results: Iron, 40.88 per cent.; oxygen, 10.57 per cent.; titanic acid, 31.72 per cent.; silica, 3.17 per cent.; lime, 0.97 per cent.; magnesia, 1.00 per cent., etc.



## USEFUL INFORMATION.

## Fallacies in Building.

To suppose that timber, growing in the woods or floating in water to-day, can be placed in a building next week, and stay where it is put.

That if such a timber be used, the walls will not crack.

That the base, window panels, casings, etc., made of such timber will not part company with the floors from one-fourth to three-fourths of an inch in less than a year, and that the builder put unseasoned lumber in the latter.

That kiln dried lumber is as good as lumber thoroughly air seasoned, or that the atmosphere has no influence upon it.

That a joint once tight will always remain so.

That if trimmings be put up before plastering, or trimmed on green walls, that putty will not be in great demand when they dry.

That hot air from a furnace will not start and open every piece of wood-work with which it comes in contact nine times out of ten.

That if partitioned be not properly braced, bridged and secured at angles, that plastering will not crack.

That ceilings are less likely to crack if cross-furred.

That a painful of time to a cart-load of sand will make mortar of any practical use either for plastering or brick work.

That it injures mortar by mixing it some time before using it, or that if mixed one day and applied the next it won't blister and crack.

That a cement roof, so soft that it fills the leadere in summer, or so hard it cracks in winter, will not occasion the want of new ceilings in a little time.

That a "botch" can build as good a building as a thorough mechanic.

That in all cases money is saved by contracting with the lowest bidder.

That all knowledge in relation to building is embodied in every one who signs "Architect" after his name.

That architects and builders never "lay in together," and owners never get "ehone" through that little arrangement.

That architects, as a rule, get no other commission on buildings except the traditional "five per cent. on the cost."

That builders always carry out plans and specifications to the letter.

That there are no high-minded conscientious, competent architects, and no honest reliable builders; and that either class does not bear a reputation equal to that of any other business men.

That a builder does not require an extended theoretical, nor an architect as extended a practical knowledge, to be successful.

That no builder can be a successful architect, or that a practical architect cannot be a successful builder.

That you, reader, without practical knowledge, know a great deal more about the details of a house than of a locomotive.

**AN ANCIENT OUTLET TO LAKE SUPERIOR** has been discovered by the Michigan State Geological Survey. This outlet is unmistakable in its character and consists of a long deep valley or depression, what we would call in California a cañon, bordered with high bluffs, and is continuous from the south shore of Lake Superior to Green Bay in Lake Michigan. The practicability of a ship canal is suggested by this discovery, and surveys will no doubt soon be made to that end. Should it be found practicable, it will greatly shorten the distance between the ports on the two lakes.

**WATERING TEAMS OFTEN.**—Horses and oxen at work need water often. The plowman carries his jug of water, or leaves his team to rest while he goes to the house for a drink. But the team works harder than the driver, and probably needs drink as often; yet many teams are taken out early in the field, where there is no water except in the driver's jug, and work five or six hours before they can get a drop. Is it any wonder that they are injured by drinking too much when they are led to the spring at noon or evening.

**RAIN IN COUNTRY AND CITY.**—Country rain and city rain, when examined chemically, affords by comparison, some interesting scientific results as to the purity and impurity of the atmosphere. Dr. August Smith, in the journal of the Scottish Meteorological Society says that the rain of towns where much coal is burned is easily

distinguished, by common observation even, from country rain. The one is clear, and colorless, the other black and muddy; the one is tasteless, the other tastes of soot; the one is neutral, the other is acid, and corrodes metals and even stones and brick, destroying mortar rapidly, and readily spoiling many colors. As the rain washes the air, which is found to be purer after a rain-fall, the impurity which goes into the water can, by chemical experiment, easily be taken out; and thus by this natural washing of the air chemists are enabled to ascertain the comparative healthiness of different localities, a pure atmosphere being an essential element of the good health of a community.

**A POPULAR ERROR CORRECTED.**—The prevailing idea entertained by the inhabitants of temperate climates as to the exceedingly gorgeous nature of tropical vegetation is far from correct. Mr. Wallace, who lived for years in the East Indies, says that in the most luxuriant parts of the tropics flowers are less effective in lending color to the landscape, than in temperate climates. While there are many grand and beautiful tropical plants, it must be remembered that the proportion they bear to the mass of the vegetation is very small.

**PLANT GROWTH IN WARM AND COLD CLIMATES.**—The active principles of plants, according to recent investigations, are more concentrated in the leaves of plants grown in cold climates where the vegetation is less vigorous, than in warm climates. In illustration the well-known facts are cited, that tobacco grown in northern regions is stronger than the same plant raised in mild or tropical regions, and celery, it is stated, is affected in the same way by the influences of temperature and moisture.

**TO KEEP FLIES FROM HORSES.**—One of the simplest means we have ever heard of keeping flies from annoying horses or cattle, is to take a bunch of smart weed, bruise it so as to cause the juice to exude. Rub the animal thoroughly with this bunch of bruised weed—especially upon his neck, legs and ears. Neither flies or other insects will trouble him for at least 24 hours. If preferred an infusion may be made by steeping the weed, and applying the liquid with a sponge.

**A NEW RESPIRATOR FOR FIREMEN.**—Prof. Tyndal, the celebrated scientist, it is said, has perfected a new respirator for firemen, in which the solid particles of the densest smoke are arrested by films of cotton-wood wetted with glycerine and the most repugnant gas by layers of charcoal. By these simple means, firemen can remain within burning buildings for upwards of half an hour at a time with safety and comfort so far as respiration is concerned.

**SPONGE PAPER** is a new article of manufacture recently patented into France. It is made of evenly and finely divided sponge added to ordinary paper pulp, and worked as in the common paper making apparatus, into sheets of different thicknesses. It is said to have all the peculiarities of sponge, absorbing water readily, and remaining moist a long time. It has been used as dressing for wounds with considerable advantage and is capable of several important technical applications.

**A HUGE ELECTRO-MAGNET.**—Wallace & Sone, of Ansonia, Connecticut, have recently delivered to the Stevens Institute of Technology, at Philadelphia, a magnet which weighs about 1,600 pounds. The coils are wound on eight brass spools; about 400 pounds of copper wire are wound on these spools, which are of course split and filled in with vulcanite. The lifting force of this magnet is estimated at between 30 and 50 tons. It is five times as powerful as the one used by Faraday and Tyndall in their famous researches.

**COOLING BY FANNING.**—The cooling effect of air blown upon the surface of the body is due mainly to the carrying away of heat by the increased amount of evaporation thereby produced. In this way the face may be sensibly cooled by forcing against it air at a temperature even above blood heat.

**STING OF INSECTS.**—An Indiana correspondent writes thus: Tell your readers that a few drops of coal oil dropped on parts stung by bees, wasps or hornets will give instant relief.

## GOOD HEALTH.

## Poisonous Flannel, Again.

**EDITORS PRESS:**—My attention has been called to an article in your issue of the 5th inst., on the poisonous quality of red flannel, and as a little circumstance connected with myself seems to fully confirm what you then said, I thought it might be of service to others to give it to you for publication.

On the first of last April my wife was taken suddenly sick, after washing; a strange feeling came upon her which she could not account for, and at the same time her arms, from the elbows down, were covered with a very singular eruption, of a scarlet color. Her neck also and from the knees down, were affected in the same manner. No other portion of the body had a single sign of eruption upon it.

She was taken sick the day following her washing, and as luck would have it, a physician called at our house and I directed his attention to this eruption upon my wife. He looked long and carefully upon the case and then remarked that it was something that he had never seen before in a practice of fifteen years. A number of our friends called, but it was new to them all.

On reading the article in your paper above referred to the whole matter was made clear to my mind. Being in the city a short time previous I bought some red flannel from which to cut letters for a sign, and having about enough left to make a pair of drawers, I proposed to my wife to make them. She did so, and after they were done I wore them, during which time I was troubled with an unusual itching, which, at the time, I attributed to fleas, but could never find any upon my person. I finally cast the drawers aside for washing, which operation was attended with the result already stated.

After she had washed them she put them in the scald and the color was immediately changed, several degrees darker. Having but one pair, I thought I would buy enough more to make another for a change. The latter have been washed several times, and are just as bright after repeated washings as they were when first made; they have not shrunk in the least, whilst the first pair are perfectly useless.

Now I am perfectly satisfied that the mystery of my wife's sickness is solved; her symptoms were the same as those of the woman spoken of in the Press, who washed a similar garment. The reason of her breaking out upon her shoulders and neck, and below the knees, I attribute to the poison being conveyed to those parts by her hands, in dressing. The instant I read that article, I was satisfied that the poison was in the flannel. The two pieces of flannel were bought at different places.

D. L. PERKINS.  
Emmotan, Sherman Island, Aug. 7th.

## How to Give Children an Appetite.

Give children an abundance of out-door exercise, fun, and frolic; make them regular in their habits, and feed them only upon plain, nourishing food, and they will seldom, if ever, complain of a lack of appetite. But keep them overtasked in school, confined closely to the house the rest of the time, frowning down every attempt at play; feed them upon rich or good-seasoned food, candies, nuts, etc., allow them to eat between meals and late in the evening, and you need not expect them to have good appetites. On the contrary, you may expect they will be pale, weak, and sickly.

Don't cram them with food when they don't want, or have no appetite for it—such a course is slow murder. If they have no appetites, encourage, and, if need be, command them to take exercise in the open air. Don't allow them to study too much, and especially keep them from reading the exciting light literature which so much abounds in our book-stores and circulating libraries. In addition to securing exercise for the children as above, change their diet somewhat; especially if they have been eating fine flour, change to coarse or Graham flour.

Sickness is the most expensive nuisance on the face of the globe. There may be instances where it makes people or children better, but generally it makes them selfish, sad, misanthropic, nervous, mean, and miserable. The way to make children happy and good is to keep them well.—*Boston Journal of Chemistry.*

## What and When to Eat.

We eat, says the *Journal of Health*, to keep warm and to sustain strength, and all articles of food have these two elements in varying proportion. Oils, tallow and whale blubber are almost wholly of the warming elements; hence in Greenland, where the thermometer is many degrees below zero, and a great deal of heat is required, a native will drink half a dozen gallons of oil every day, or eat ten pounds of tallow. In the hottest climates of the world the inhabitants live to a great extent on fruits and vegetables, which have but very little of the heating qualities. In our climate, which is between the two, meats, vegetables and fruits are eaten all the year round; but if eaten judiciously, if eaten according to the season—more of fruits and vegetables in summer and less of meats and fats—an incalculable amount of sickness would be prevented every year. We would think a man deranged who should keep as large fires burning in his house in summer as in winter, and yet we all persist in eating meats and fats and butter all through the summer. Meats and butter are on our tables three times a day, when in reality they ought to be sparingly used during the summer months, at least by the young, the old and the feeble, and by all who are most of the time in doors, or who have no active employment. For the classes just named, a very appropriate diet for the summer would be as follows:

Breakfast—Cold bread and butter, a slice of cold meat, or in its place a couple of eggs, or a saucer of berries or stewed fruit, without milk, cream or sugar. The same for dinner, with one vegetable; no other desert. For supper some cold bread and butter and a cup of hot drink, and nothing else; nothing whatever between meals. So far from starving on such a diet, the class of persons above named would thrive on it, would grow stronger, would have more bodily vigor, more mental elasticity, and a greater flow of animal spirits, and for the reason that few would eat too much; there would be nothing to over-tempt the appetite, hence the stomach would not be over-worked; what work it did perform would be well done; the blood made would be pure, life-giving and energizing. Any man of ordinary intelligence and observation, who will give a fair trial to the above system of feeding, will scarcely fail to be convinced of its value within a week after he begins it.

## How to Cure Stammering.

Lute A Taylor, editor of the *La Crosse*, (Wis.) *Leader*, who has been an inveterate stammerer, writes as follows about the way to cure the habit: "No stammering person ever found any difficulty in singing. The reason of this is that by observing the measure of the music—by keeping time—the organs of speech are kept in such position that enunciation is easy. Apply the same rule to reading or speech, and the same result will follow. Let the stammerer take a sentence, say this one—'Leander swam the Hellepont'—and pronounce it by syllables, scan it, keeping time with his finger if necessary, letting each syllable occupy the same time, thus, Le-an-der-swam—the-Hel-les—pont, and he will not stammer. Let him pronounce slowly at first, then faster but still keeping time, keeping time with words instead of syllables, and he will be surprised to find, that, by very little practice, he will read without stammering, and nearly as rapidly as persons ordinarily talk or read. Then practice this in reading and conversation until the habit is broken up. Perseverance and attention is all that is necessary to perform a perfect cure."

## Beef Tea.

Many persons believe that beef tea is very nourishing, and that it is an excellent strengthener for people of weak health. This is a mistake. Some few practitioners and chemists have long been aware of the fact, and now their view is confirmed by Dr. Marcet. There is no nourishment in beef tea. Mixed with solid food, it imparts a relish which promotes digestion; and the best that can be mixed therewith is the beef from which it was made, reduced to a powder. In two, at least, of the London hospitals the mixture of powdered beef with the beef tea has long been practiced; and there the patients get strong on a beef-tea diet. It is worth remembering, too, that the objections to the use of beef tea apply equally to the preparation described as Extract of Meat, with the further disadvantage that the extract is always stale.—*Chambers' Journal.*



# Scientific Press.

W. B. EWER..... SENIOR EDITOR.

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## San Francisco:

Saturday Morning, Aug. 19, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, August 16, 1871.—Legal Tenders buying 89½; selling, 90. Gold in New York to-day, 112½.

## Table of Contents.

Our First Narrow-Gauge Passenger Locomotive, Ill.; Trials of Road Steamers.....97  
MECHANICAL PROGRESS.—Petroleum for Fuel; Use of Oxygen for Clearing Oil Wells; A New Mechanical Movement, Ill.; Hoop Iron Chains.....98  
SCIENTIFIC PROGRESS.—The Heavens from a Southern Point of View; Astronomical Observations; Saccharate of Mercury.....98  
A Trip to Colorado—No. 6; The Hell Gate Obstructions; Great Waste of Precious Metals; Wandered to the Left.....69  
MINING SUMMARY.—California, Idaho, Montana, Colorado and Utah.....100  
Market Review: Mining Shareholder's Directory, etc.....101  
Patents and Inventions; Rice Culture.....102  
Useful Information; Good Health.....103  
A California Improved Road Steamer.....104  
English Capital and California Mines; Crocker's Trip Hammer Quartz Mill, Ill.; Hall Safe and Lock Co.; The Mechanics' Fair.....105  
Domestic Economy, Domestic Receipts; Mechanical Hints; Life Thoughts.....106  
The Watson Steam Stamp Mill.....108

## Notices to Correspondents.

W. H. M. SHERMANTOWN, NEV.—Are there any of Ericsson's original Caloric engines manufactured now, and if so, by whom, and at what prices are they sold? and what "horse power" do they possess? I know of "Roper's Improved," but that is not Ericsson's invention. Parties here are in search of one for use in forch-lust furnaces, where water is scarce, if they have sufficient power for the purpose. I think 5-horse power, and perhaps less, ample for the smelting of lead ores.

[We saw, recently, several of Ericsson's old engines in operation in New York, but no new or improved ones. It is our impression that there are some dozen orders lying useless in this State, which would be sold cheap if advertised for sale.—EDS. PRESS.]

MR. A. D. HODGES, lately connected with the editorial staff of the Press, has taken leave of absence, having been called to occupy a responsible position in one of the mills at Dayton, Nevada. While we regret to lose such an efficient co-worker we are nevertheless pleased to see his services so fully appreciated elsewhere. He has promised to continue his contributions to the Press, from time to time, as his leisure may permit.

IMPORTANT MINING SALE.—MR. E. Ferguson has sold to an English company his mine, located on the main Merced river, about 10 miles below the Yosemite Valley, Mariposa county. The consideration \$100,000, cash down. The mine has paid over \$40,000 net in the last seven months. Thus it seems that despite the counsel of the London Times, English capitalists will still persist in investing their money in California mines. The "Thunderer," seems to be losing its former influence, and is becoming less and less regarded as a safe guide in matters either financial or political.

## A California Improved Road Steamer.

What has become of Hyde's overland steamer? has been asked so often, that we have taken pains to give the public an answer. Every one is familiar with its performances in this city; and of its transfer to Sacramento, and its feat of hauling the three capitol columns 50,000 lbs.—unloading itself from the ears down an incline of 32°, and loading itself up over the same slope when it had performed its work at the capitol. The next we hear of it is from the Corinne Reporter, of June 3d, which remarked: "The steam wagon drew well to-day, it drew a big crowd of spectators;" also, "Early last evening the great steam wagon of the Corinne line to Southern Utah arrived from the west on the freight train. It is a wonder of strength and ingenuity and has already been tried as to capacity for hauling. It is now here awaiting the steamboat to carry it across Great Salt Lake to the roads leading toward the mines. A commencement of the vast enterprise of making steam thoroughfares of all the common roads in Utah. Col. Hyde & W. W. Hanscom, the builder, goes to Salt Lake City, to-day, with this useful wonder, and after showing it to the inhabitants of that place will return and ship it to Lake Point, by the steamboat, City of Corinne."

The Corinne paper, of June 10th, says the steam wagon has arrived from Salt Lake City, where it has been giving practical tests of its powers. It goes to Lake Point from here to haul ores from the mines to the steamboat landing. From the boat it crawled its way to land over the shaly wharf with the same caution that any other elephant would. It was there loaded with lumber and coal, for bridges and fuel on a train of six wagons, one of iron entirely, the others ordinary freight wagons. The progress of the steamer to Tooele and Stockton and its return with a load of ore and hullion are best given from Mr. Hanscom's diary notes taken on the trip.

The greatest difficulty experienced was in the supply of water obtainable on the road, some of which could not be kept in the boiler on account of its effervescing so much. It became necessary to blow out the water several times when they could get better to fill up with. The tanks carried 300 gallons, which will supply 20-horse power four hours, with a consumption of five pounds of coal per horse power per hour.

## Notes of the Trip.

July 11th, 1871—Left Lake Point at 9 o'clock this morning, tanks and bunkers full of water and coal. Drawing:

One iron truck.....	5,000 lbs.
Five wood freight wagons.....	10,000 lbs.
Steamer itself.....	22,000 lbs.
	37,000 lbs.
Lumber and coal to distribute.....	26,000 lbs.
Total.....	63,000 lbs.

Road rough, over rocks—an old stage road. Water foamed very much. Stopped at Grecian Bend for drinking water. From here the grade was 1 in 20; used 85 lbs. steam; road hard. Stopped at Coral for water with 45 lbs. of steam. Water not foaming so bad. Filled tanks and started with 70 lbs. of steam. Coal very bad, making much clinker, stopped for steam at 60 lbs., started with 80 lbs. steam on grade 1 in 30 a distance of 3,860 feet to summit. Stopped to pump up boiler. Started with 50 lbs. steam, but stopped again soon to make more. Arriving at Eave's, 4½ miles, at twenty minutes past three. Terrific wind storm. Filled tanks by barrels; took on ¼ cord of wood and left two tons coal. Stopped at Eave's all night.

Started from here in the morning with full tanks, 100 lbs. steam, grate clean and fuel good; gained steam to 125 lbs. on an up grade of 1 in 100. Arrived at L. J. Smith's, at 7-15 min., with 70 lbs. steam and 16 in. of water in tanks. Left L. J. S.'s at 9.55 with 130 lbs. steam; in 21 minutes stopped for water in boiler, on up grade of 1 in 40, road soft loam, much cut up by teams. Boiler foamed very much when going over the little sharp spitches of the road. Stopped for steam and water in boiler—boiler still foaming. Had to stop and draw fire and clean clinkers off of the grate—clinkers as big as a hat being drawn out. Started again on an up grade of 1 in 16 with 65 lbs. steam and cutting off at ¾ stroke; stopped for water in boiler and lueched. When one quarter of a mile

from Three Mile creek, unhitched from train and run to creek for water, but found it dry. Hyde then walked three miles in to Tooele town got four barrels of water hauled out to the engine. Hitched on and brought train across the creek. Mayor, officers and citizens came out with a band of music to welcome the steam horse. Got three more harrels of water, but unhitched and run to the creek near Tooele for more water; hack and hitched on again taking train about half a mile, when it being near dark, unhitched and ran the engine to the creek on edge of Tooele and stopped for the night getting to the Oquirrh House at half past nine.

Sunday morning, took engine and train round to front of the hotel and all rested this day—Monday—took out lumber for bridge and cleaned out our boiler. Tuesday, 18th, took train with seven barrels of water, 1,000 lbs. coal and left at noon, going by way of Coleman's with 60 lbs. steam. Stopped five minutes to examine the road; started on but soon stopped again five minutes to feel the road, and examine the ditches. In crossing the ditches wheels would sink five and six inches; but finding hard bottom would keep going, went round corners with steam at 60 lbs. drawing the train. Reached last ditch at 10 o'clock. Filled tanks, barrels and boiler and hellies and went ahead again. Run on till we broke through into a drain from a house. Unhitched and hauled out with the wire rope and 120 lbs. steam. Stopped to clear stones from last dry ditch; ran along 20 minutes, stopped to take stones out of the road. Grade averaging 1 in 45. Arrived at turn of road and stopped for water. Started up grade, 1 in 35, with 85 lbs. of steam. Stopped on grade of 1 in 25 to clear road of rocks. Started and run 20 minutes; stopped to throw out stones, again going on 15 minutes, stopped for stones. Tank one-half full. The last mile, before making divide, the grade ranged from 1 in 16 to 1 in 9. Arrived at Stockton at 7½ p. m., amid great excitement. Wednesday 19th left three wagons at hotel to load with one, at baru. Took the iron truck and one wagon to smelters for bullion, loaded truck with 13,000 lbs. and wagon 7,000 lbs. Road out of the cañon hard gravel, but sidding, 1 in 7—on grade 1 in 50.

Broke train to go over the divide. Took truck with 13,000 pounds up the grade 1 in 8 with 110 lbs. steam; road hard and some gravel, cutting off at ¾ stroke; also over grade of 1 in 10, with 90 lbs. of steam, cutting off at ¾. Got wagons all in town at night. July 20th started in morning and hauled wagon with 7,000 lbs. to top of divide; then iron truck with 13,000; then 2 wagons, with 160 sacks of ore; then clipper wagon with 40 sacks. In hauling these loads from Stockton to divide, the load including engine averaged 40,000 lbs. The grade was 1 in 25 and steam 80 lbs., the road dry, dusty, grass ground, no sinking of engine wheels, but wagon wheels sunk some. With gross load of 40,000 lbs., up a grade of 1 in 7 it took 115 lbs. of steam, over a very bad, rough road full of stones, from size of walnuts to hen's eggs, and sidding 1 in 5. Got all wagons to top, made up train and tried it.

Steamer.....	22,000 lbs.	} 7,000 lbs. Rolling Stock.
Iron truck.....	5,000 lbs.	
5 wagons.....	10,000 lbs.	
Bullion.....	20,000 lbs.	
Ore.....	20,000 lbs.	
Water.....	2,000 lbs.	} 43,000 lbs.
Coal.....	1,000 lbs.	
Total.....	80,000 lbs.	

Started the train with 100 lbs. steam; crossed Soldier's Bridge Cañon, taking the whole train up a grade of 1 in 25, in one place 1 in 7, requiring 120 lbs. steam, cutting off at ¾ of stroke. After crossing bridge and one more canon, stopped train for the night. All but Hyde walked back to Stockton for supper. They took his to him as they went back, all slept on train.

Friday, 21st, made an early start, with 100 lbs. steam, up a grade of 1 in 28, cutting off at ¾. Bolt in excentric strap got loose and slipped. Stopped, put in a bolt and moved with 120 lbs. steam on ground soft enough for wheels to sink an inch and up a grade of 1 in 18 cutting off at ¾. Stopped and unhitched to run to Tooele for water. Devil or some other bad spirits in the water that came out of the whisky and vinegar barrels prevented boiler making steam, and had to blow everything entirely out and start fresh.

Saturday, 22d, filled boiler and went out to train in afternoon, brought train to bridge.

Sunday, rested.

Monday, 24th, sawed wood and brought train across hridge to Nelson's and filled up with water; while crossing a bridge the forward iron truck run off the track plank and out through, and every wheel of the

train dropped to the axle, cutting the planks into splinters and making kindling wood for the rest of the trip.

Tuesday 25th, started from Nelson's with train and 10 sacks coal and 1 cord of wood; run back to creek, fixed bridge, filled tanks and harrels, hitched on to train and got to Eave's at 5:40. Coal very bad, being about ¾ shale. Stopped for night.

Wednesday, 26th, left Eave's at 9 o'clock, run down to Lorenzo Youngs for better water, washed engine, and started with train, water foaming very badly, got train to foot of hill and blowed out, went back to Young's again, got all fresh water, and took iron truck to top of hill. Then 2 wagons. Hanscom walked to Clinton, and engine went back again for water. Blowed out and filled up.

Thursday, 27th, finished hauling the water and put in 12 sacks coal, got steam and left Eave's at 1:30 p. m., taking the last 3 wagons to top of hill. Made up train and started at 2:20, arriving at Grecian Bend at 6 o'clock. Unhitched and went to trading store. After filling tanks and boiler, went to Clinton's and stopped for night.

Friday, 28th, started at 9:30 A. M. getting into Lake Point at 11 A. M., leaving bullion wagons at stable and ore wagons at Steamboat Mill.

Thus was run the first freight train ever drawn in America, by steam, over a new, rough country road; and Messrs. Hyde & Son have received the first freight money ever earned by such means. Though the difficulties particularly as to water seemed almost insurmountable, yet with a pluck that was astonishing to the slow apprehensions of the Utahites, Messrs. Hyde & Hanscom overcame every difficulty, and brought the train in that showed immense capabilities in the machine. When we survey, by the aid of these diary notes, the ground it went over, and the load it hauled—40,000 pounds of ore and bullion, and 37,000 lbs. of rolling stock in engine and wagons, with an average of 3,000 of fuel and water, making a load of 80,000 lbs. moved twenty miles, the engine running back and forward for water, making about 60 miles running.

The road over which this work was done consists mostly of loam, which has a road resistance of 150 to 250 lbs. per ton, with three places where the resistance ran as low as 100 lbs. per ton, the road being hard sand. The grades varied from 1 in 100 to 1 in 7—the most about 1 in 50; and in some places there were pitches about seventy-five to one hundred and twenty-five feet across, from eight to twelve feet deep, some of them containing many rocks projecting above the ground from one to two inches. Some of the steepest grades were sidding from 1 in 5 to 1 in 12, throwing immense strain on the wheels and rubber tires, and showing the powerful traction those wheels have. Total amount of water used from Stockton to Lake Point, (20 miles) was 1,500 gallons and about 3,000 lbs. of coal. The resistance of the road averaged about 6,000 lbs.

The engine is rated at 20 indicated horse power; but is capable of exerting, for a short time, much more than that as indicated by the statement of gross loads over various grades, with the resistance given to gravity and road resistance, at an average speed of 1½ miles per hour.

Table of the resistance at circumference of driving wheels, for

63,000 lbs.	grade	1 in 16.	resistance	6,401
40,000 lbs.	"	1 in 8.	"	6,840
40,000 lbs.	"	1 in 7.	"	7,720
80,000 lbs.	"	1 in 18.	"	11,760

The engine has stood the rough work of the road—traveling in all about 60 miles—to the satisfaction of owners and builders, and they consider that the trip has demonstrated that, mechanically, steam on common roads has been made a success. This showing compares most favorably with the recent trials of road engines in England, at the Wolverhampton agricultural show, lately published in the Engineer, particularly in the tractive power of the wheels. No power that the engine has exerted has been able to slip the wheels, and several times the whole pull would be suspended on the point of a rock.

The work has demonstrated the efficiency and superiority of the kind of rubber tire employed by Mr. Hyde over every other yet introduced, the rubbers showing in their action, as was anticipated, a regular, continuous change of surface as they were pressed to and left the ground, creeping around in their beds by every pressure, thus presenting a new surface to the wear at every revolution of the wheel, and keeping a perfectly true roller. There appears to have been fewer weak points developed in this machine than in any other we have been informed of; and those who are interested should compare the perform-



ance of this engine with the recent trials of road engines at Barnhurst and from Wolverhampton to Stafford in England, as published in the *Engineer*, which will show that with all their experience they are not one whit ahead of the now State of California in overland or road steamers.

#### Recapitulation.

To move the total weight of 80,000 lbs., engine cutting off at  $2\frac{1}{2}$  and road grade 1 in 25, required 120 lbs. steam; with the grade 1 in 28, hard and smooth, required 100 lbs. steam; with grade 1 in 18, on loamy road, so that train wheels would cut in three-quarters to an inch deep required 120 lbs.

On a level, hard, smooth road 60 lbs. steam would start the load, and 45 lbs. would then keep it moving. On a down grade of 1 in 22, the gravity of the load would move the whole train without steam. The actual running time on the road for the first  $4\frac{1}{2}$  miles was 3 hours 15 minutes; to next station,  $2\frac{1}{2}$  miles, 1 hour and 30 minutes actual pulling time. From thence to Tooele,  $6\frac{1}{2}$  miles, though they did not get there till night, yet the real working time was but 3 hours 49 minutes. From Tooele to Stockton,  $6\frac{1}{2}$  miles, the working time was 2 hours 25 minutes. Total, 10 hours 59 minutes.

On the return trip, the working time was from Stockton to Eave's, 13 miles, 8 hours and 10 minutes, and from Eave's to Lake Point, 3 hours and 20 minutes. Total hauling time, 11 hours 30 minutes.

#### English Capital and California Mines.

We have before alluded to the conduct of the *London Times* in working against the investment of capital in the mines of this country. The *Times* has been answered fully by Ross Browne, and now the matter has been taken up by other English journals who all differ from the *Times*.

That paper is willing to allow that there may be one or two mining properties worth purchasing here, and has actually spoken favorably of one scheme,—perhaps more. But in this case its opinion is precisely as valuable as in the others. Knowing nothing of the subject, and continually making rash statements, what it says one way or the other is not to be depended on.

In the columns of the *Times*, the assertion has been made, for instance, that the mines sold in London during the past year or two, have been purchased merely on the representation of the vendors and agents. This is a remarkable statement. If it were true, it would be a most serious reflection on the want of common sense among the moneyed business men of England. It would not be the slightest argument against our mining properties, but would reflect solely on Englishmen. But it is too absurd.

Mr. H. H. Roach writes to the *London Mining Journal* concerning this statement, and what he says is worth noting.

"You will, I hope, assist me to distinctly deny this gross mistatement, which impugnes the conduct of all the agents, directors, stockbrokers, and others now operating in this branch of business.

"I defy the said writer to name one mine that has been sold in this market without first having been inspected by an *English* mining engineer, selected by the purchasers, and sent out from here to verify all statements. The result of the last ten years' business in London is about as follows:—Over one million sterling has been invested in developed and dividend-paying American mines (not "wild cats.") The result has been more than satisfactory. Most of the properties pay regular quarterly dividends, and the gross subscribed capital has nearly doubled in value.

"Having acted as agent for the sale of several of these properties, I am anxious as the press to stamp out everything that is "Bogus," and endeavor to maintain the high character that American mines now hold in this market."

The *Mining Journal*, *Mining World* and other English papers which are posted in the matter have thoroughly exposed the ignorance, willfulness and prejudice of the once powerful "Thunderer."

#### Crocker's Trip Hammer Quartz Mill.

Each successive Fair brings out one or more devices for crushing quartz. At the present exhibition Mr. C. D. Crocker, of Virginia City, Nevada, exhibits something quite different from anything which has heretofore been seen. A large working model is shown, of dimensions quite large enough to do considerable effective work.

We give, herewith, a very accurate representation of this noisy little worker, the loud clattering of which draws crowds around it whenever it is put in motion. It is constructed upon the principle of the trip hammer, whereby quick, sharp blows are made, with very light stamps, and with less proportionate power, according to weight of stamp and frequency of blows, than is required in operating heavy stamps with a direct lifting action. The model on exhibition appears to work well, and if the principle will work equally well on a large scale, there will undoubtedly be a material advantage in this over the ordinary plan of operating stamps.

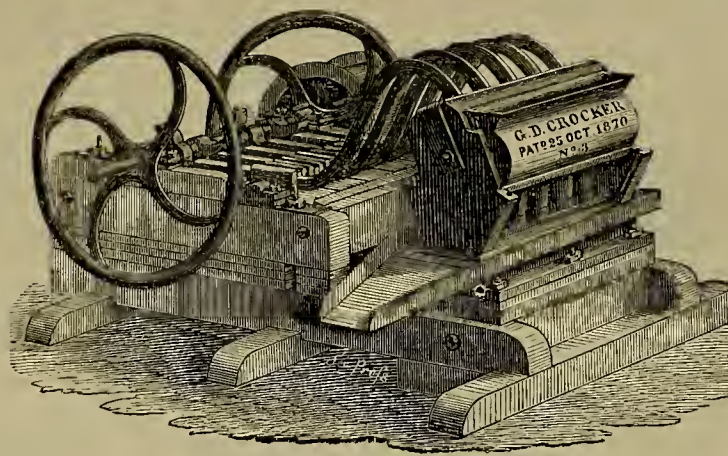
The advantage of sharp, quick blows with a light stamp, must be obvious to

rapidly increasing in both sales and popularity. The illustrations recently published in this journal showed a portion of their superior points of principle and construction.

Mr. Carnahan has been associated with the company for six years. He informs us that over four hundred men are now employed in the works. These safes and locks are used by a majority of the leading banks in Cincinnati, Pittsburgh, Chicago, St. Louis, Louisville, Memphis, New Orleans and various other southern and western cities. The largest orders filled the past year were for a bank vault, etc., in Pittsburgh, for \$40,000, and another in New Orleans for \$50,000.

#### The Mechanics' Fair.

The arrangements of exhibits at the Pavilion were perfected early in the week, and the exhibition is now complete. Every available foot of space is occupied, and the exhibition, as a whole, is universally pronounced superior to any which has preceded it. More taste is displayed both in the general decorations by the manage-



CROCKER'S TRIP-HAMMER QUARTZ MILL.

every one who has employed alternately a small light hammer, and a heavy one for breaking quartz before a battery. The inventor claims a decided advantage in his 400 light blows per minute over the 50 to 60 blows per minute delivered by the usual 600-pound stamp.

A 5-stamp battery of this construction strikes 2,000 blows per minute; and while the first cost is greatly reduced in attaining the same crushing capacity, the power required to run it is also much reduced. The difference in freight to many places would also be very great. The machine is made of different sizes, and calculated to crush from seven to thirty-five tons per twenty-four hours. The construction and mode of operating the machine will be seen at a glance by reference to the illustration. As a prospecting machine nothing could be better; and we trust the inventor will soon give it a practical trial on a large scale.

#### Hall Safe and Lock Company.

The largest safe manufacturing company in the world, located in Cincinnati, is about to establish an agency in San Francisco.

We allude to the Hall Safe and Lock Co., whose general agent, Mr. J. R. Carnahan, is now in our city, and will make his headquarters at the well and favorably known hardware house of Conroy & O'Connor, Front street, until Sept. 1st.

A few months since our special agent visited the works of this company, in Cincinnati, and furnished us the most positive assurance that its manufactures—including Hall's patent dovetailed burglar-proof safes, patent concrete fire-proof safes and his patent celebrated combination bank locks—are of the highest rank and are

ment, and by the exhibitors in their individual arrangements. Some idea of the former may be realized from the fact that about two tons weight of flags alone are employed—of course those of all nations are shown, and generally in great profusion. The large fountain is materially improved, and a smaller one has been placed in the Horticultural Department from which jets and sprays of cologne are constantly playing, and adding their delicious fragrance to the perfume of numerous flowers elegantly arranged in beds and parterres, divided by avenues and walks, and relieved by statuary, arbors and various other ornamental devices. The fountain is operated by machinery, of course,—one of Knowles' patent hose pumps being employed, and connected with the driving power of the main engine. The attendance both day and evening is very large, and the receipts in proportion.

#### The Art Gallery

Is well filled, and the display of paintings, statuary, photographs, drawings, etc., is very fine. But the chief attraction at that end of the Pavilion appears to be the remarkable and unique exhibition of

#### Japanese Products.

Four weeks were occupied in the arrangement of this department. The weight of goods, as per ship's manifest was 66 tons, embracing almost every variety of articles manufactured in the Orient.

The Japanese goods have been collected, forwarded and put up under the direction of Mr. H. D. Dunn, who was sent out as a special agent by the Institute. Several Japanese, who speak our language quite well, accompanied the goods, and are in constant attendance in that department, and add interest to this curious exhibit by their readiness to answer questions with

regard to the articles, propounded by visitors. This display is by far the largest of Japanese goods ever before made outside of that kingdom.

#### Chinese Products.

In the same room are several large cases of China goods, fancy articles, etc. This exhibit has been collected and forwarded through the personal exertions of Dr. D. J. McGowan, of Shanghai, China, a gentleman well known to many of our citizens, and who spent several months here some three or four years ago, and lectured on "China and Japan." One case of goods in this collection is chiefly made up of a fine assortment of elegant Chinese silks of all colors, and much heavier than similar goods manufactured in Europe. There is also a varied assortment of ornaments, many of exquisite workmanship, taste and art.

Many of the articles from China and Japan are superior to any which have ever before been allowed to leave those countries. Those forwarded by Dr. McGowan, and which were consigned to N. D. Arnot, Esq., will be sold at the close of the Exhibition, and we presume some of our wealthy citizens have already got their eyes upon choice sets of ware, rich dresses for their wives, rich cabinet work or some other rare specimens of oriental skill and industry.

#### The Mechanical Exhibit

Is not so full as we have seen it in the past, but it is good and suggestive of progress, nevertheless.

HALLIDIE'S TRAMWAY, is one of the novelties in this line, and crowds of curious visitors are attracted to witness its workings. One of these tramways is now in operation at White Pine, conveying ore several miles from the mine to the mill where it is crushed.

THE PACIFIC ROLLING MILLS make a fine display and give evidence of progress in a most important branch of industry.

ROCK DRILL.—Dr. A. Blatchly is there with his improved Rock Drill. He has improvised a tunnel in which he exhibits the mode of working his drill in a confined space, and shows a curious and ingenious device for carrying power around a corner, without the use of intervening pulleys or gearing.

HAMMER QUARTZ MILL.—Mr. C. D. Crocker exhibits a large working model of a trip-hammer quartz mill which is elsewhere more fully described and illustrated.

SPAULDING & Co. have a tasteful arrangement of saws from their manufactory. The American Flag, with escutcheons and a huge eagle is faithfully represented by a curious arrangement of saws—circular, cross-cut, hand, ice, pruning and various other kinds.

A HUGE MINING PUMP of a capacity of 60,000 gallons per hour, of somewhat novel construction is exhibited by Borry & Place. They also exhibit an endless band saw, several blowers and various other machines for diverse purposes.

DAVID STODDART exhibits a series of Cameron Steam Pumps, of various sizes from 0 to 8, the largest of which has a capacity of 2,400 gallons per minute. All these pump are of heavy make being intended for heavy as well as light duty.

NELSON & DOBLE are on hand with a general assortment of horse shoers, tools, miner's drilling sledges, hammers of various kinds, sledges, chisels, etc. They also show two ingots of steel, the first manufactured on this coast. One-half of each ingot is drawn out to show the quality of the steel.

DEACON & Co., Machinists, at 120 Main street, exhibit a stationary engine, built for the California Jewelry Company, who are now erecting a large iron front building on Sutter street between Montgomery and Kearny. We learn also that the same

(Continued on page 108.)



## DOMESTIC ECONOMY.

### Hints in Canning Fruit.

The season for canning fruit is now at its height and every housekeeper should put up a good supply for use after fresh fruit has gone. There is nothing healthier or hardly anything cheaper than canned fruit—really worth nothing where you raise it yourself. The best fruit is that which contains the least sugar—even down to none at all.

It may seem almost superfluous to write anything upon this subject—so generally is canning practiced, and so adept do most people think they are at the business; but one Estelle Edgerton has written a letter to the *American Agriculturist*, which we think contains some hints that will be new at least to some of our readers. We copy as follows:

A lady not long since was telling me that last fall she put up three baskets of as handsome peaches as were ever gathered, and every hottle was spoiled. I constantly hear the ladies talking about their spoiled fruit. There is another remark I often hear, and which seems absurd to me. It is this: "My fruit always white molds, and I think improves it." There is a thick leathery white mold, which often forms on the top of the fruit, and which can be removed whole without affecting, apparently, the flavor of the fruit; but it is not desirable to have even this sort of mold. It would be out of the question to send such bottles to a long distance, as the mold would be spread all over the fruit, if it did not impart any unpleasant flavor. There is such a thing as having hotted fruit without any mold whatever. I think the reason white mold forms, is, that the lid of the can is not applied soon enough, and many ladies consider this as part of the process. Only yesterday a friend told me that she always waited three or four minutes after the fruit was in the hottle before putting on the lid. "It lets out the air," she said. I looked surprised. "You know there are always bubbles of air that have to come up." "Oh, yes!" "I know but I always run a knife quickly down the inside, and that brings them up." The quicker the lid is applied, the better, and it should not be disturbed until you want to use the fruit.

In regard to the air-bubbles, which often form while the bottle is filling, a little care will obviate the difficulty. In putting the fruit into the bottle, do not pour in such a way as to close the whole mouth of the bottle, because that prevents the escape of the air; but rather let the fruit slide gently down the side of the bottle. It can be done just as quickly this way as the other.

The secret of having hotted fruit keep, is to have a perfectly air-tight cover, and to be sure that the fruit perfectly boils all throughout, before putting it into the bottles, and then to be quick about putting on the cover, and letting the cover alone until you want to use the contents of the bottle.

It is not necessary to let out the steam or air, after the cover is on. Do not place a string under the rubber for this purpose. Do not insert a pen-knife under the rubber (according to some directions) to let out air (I know a lady that learned this lesson after her peaches had all fermented). It is not necessary to bury bottles in the earth, or to have a dark vault made in the cellar for the purpose. Mine keep perfectly, without mold, on a shelf in a rather light cellar. If you bottle your fruit in the right way, it will keep almost anywhere, but by the stove; if you don't do it right, and let in the air with a knife, or some other way, it won't keep, no matter where you put it. Of course, if you have not done it right it will keep longer in a dark, cold place, but it will succumb to the atmosphere in the end. Bottled fruit put up in a proper manner will keep for years if desired. I had some splendid peaches at a friend's the other evening, and she said she did not know whether they were two or three years old. But she knew they were not last year's, for she did not put up any, as she had used all her empty bottles for cherries, plums, raspberries, etc., and she had several bottles of peaches on hand, and she did not think it necessary to buy more bottles for a fresh supply.

### Arrangement of Rooms.

Give your apartments expression—character. Rooms which mean nothing are cheerless, indeed. Study light and shade, and the combination and arrangement of drapery, furniture and pictures. Allow nothing to look isolated, but let everything present an air of sociability. Observe a room immediately after a number of people have left it, and then as you arrange the furniture, disturb as little as possible the relative position of chairs, ottomans and sofas. Place two or three chairs in a conversational attitude in some cheery corner, an ottoman within easy distance of a sofa, a chair near your stand of stereoscopic views or engravings, and one where a good light will fall on the book which you may reach from the table near. Make little studies of effect which shall repay the more than usual observer, and do not leave it possible for one to make the criticism which applies to so many homes, even of wealth and elegance—"Fine carpets, handsome furniture, a few pictures, and elegant nothings—but how dreary!" The chilling atmosphere is felt at once, and we cannot divest ourselves of the idea that we must maintain a stiff and severe demeanor to accord with the spirit of the place. Make your homes, then, so cosy and cheerful, that, if we visit you, we may be joyous and unconstrained, and not feel ourselves out of harmony with our surroundings.—*Art Review.*

ALMONDS possess one very important quality which is not generally known. By pounding and mixing with water, and straining, a beverage almost precisely similar to the sweetest and richest (cow's) milk may be obtained. Cream even separates from this milk, which may be converted into butter; so it is said. Thus almond orchards might afford us a supply of milk. Rees' Cyclopaedia, in a recipe for preparing milk of almonds, gives the proportions to be used as one ounce of almonds to one quart of water. In nutritious properties it is said by chemists to be fully equal to cow's milk, and has fine medicinal qualities, being a valuable remedy for heart burn, acidity, etc. We should like to receive for publication the actual experience in this use of the almond. Will some one who has the fruit, experiment and report?

HOW TO BLEACH COTTON CLOTH.—It may sometimes become necessary or convenient to bleach a piece of cotton cloth, although as a general thing it is better to obtain white cloths already bleached. Home-bleaching, moreover, is apt to injure the fabric more than the process in use at the factories, especially when manipulated, as it always is there, by skilled hands. However, cloth may be bleached as follows:

To five pounds of cloth take twelve ounces of chloride of lime. Dissolve the lime in a small quantity of boiling water; when cold, strain it into a sufficient quantity of water to cover the cloth. This must first be boiled fifteen minutes in strong soapsuds, and rinsed well in clear water. Then put it in the lime-water from ten to twenty minutes, airing it well by lifting up and down. Rinse thoroughly in warm or cold water.

HOME MADE CHLORIDE OF LIME.—An excellent disinfectant is readily obtained by dissolving a hushel of salt in a barrel of water, and with the salt water slack a harrel of lime, which should be wet enough to form a kind of paste. For the purpose of a disinfectant, this home-made chloride of lime is nearly as good as that purchased at the shops and drug stores.

ALL salted provisions should be watched to see that they are kept under the brine; for if one piece of meat lies up it will spoil the whole harrel. If the brine looks bloody, it must be scalded and more salt added; when cold, pour back.

BETTER THAN SODA.—A German scientific journal recommends laundresses to use hyposulphide of soda in place of common washing soda. It does not attack the fabric in any way, and at the same time exerts some bleaching action, which greatly improves the appearance of linen calicoes.

### Domestic Receipts.

VELVET BISCUIT.—In the milk and two well-heaten eggs put the yeast, soft butter and salt. Stir into it sufficient flour to make soft dough; strew some flour over it; lay a warm towel over the pan, and set it in a warm place to rise. Dip your hands in flour, and work the dough down; make it into small flat cakes; lay them on a buttered tin pan, quite near each other, and bake them in a quick oven for fifteen minutes, or until done.

SPONGE FLOUR BISCUIT.—Sift the flour and salt into a pan; heat the milk and lard together; pour the yeast and milk into the flour; make a stiff dough when risen; grease a pan; drop the latter on in large tablespoonsful; let them set where they will be merely warm (no more), then bake in a quick oven; eat at once. They may be baked in cups.

TO MAKE A SHORT CRUST.—Put six ounces of butter to eight ounces of flour, and work them well together; then mix it up with as little water as possible, so as to have it a stiffish paste; then roll it out thin for use.

PASTE FOR FRUIT TARTS.—Put a pound of flour on your pastry slab, with six ounces of butter, and rub them well together with your hands, then make a hole in the center, in which put two ounces of powdered sugar, two whole eggs, and rather more than a wineglass of water; mix the eggs, water and butter, shaking the whole well together, and when dry, work it together lightly, with the hands.

ANOTHER WAY.—Put an ounce of loaf sugar, beat and sifted, to one pound of fine flour. Make it into a stiff paste, with a gill of boiling cream, and three ounces of butter. Work it well, and roll it very thin.

PUT UP TOMATOES as follows: One peck of tomatoes, skinned; one and a half pints of vinegar; four pounds of sugar; one tablespoonful of cloves and one of allspice. Put in stone pots and cover tight.

CORN FRITTERS.—Beat two eggs, and add to them one pint of grated green corn, and as much wheat flour as will make it adhere together. Dip the mixture out with a tablespoon, and fry in small cakes in hot lard.

### Mechanical Hints.

GREEN VARNISH.—There is a most beautiful transparent green varnish employed to give a fine glittering color to gilt or other decorated works. As the preparation of this varnish is very little known, an account of it may in all probability prove of interest to many of our readers. The process is as follows: Grind a small quantity of a peculiar pigment, called "Chinese blue," along with about double the quantity of finely powdered chromate of potash, and a sufficient quantity of copal varnish thinned with turpentine. The mixture requires the most elaborate grinding or incorporating of its ingredients, otherwise it will not be transparent, and therefore useless for the purpose for which it is intended.

The "tone" of the color may be varied by an alteration in the proportion of the ingredients:—A preponderance of chromate of potash causes a yellowish shade in the green, as might have been expected, and *vice versa* with the blue under the same circumstances. This colored varnish will produce a very striking effect in japanned goods, paper-hangings, etc., and can be made at a very cheap rate.—*Cabinetmaker.*

HINTS TO BUILDERS.—One of the worst mistakes architects make in constructing houses is the narrow stairways in the rear. For instance, one almost invariably finds the stairway leading from kitchen to cellar or laundry only wide enough for one person. If there is any part of a house that should have a broad easy stairway, it is that part which is used the most, and where it is necessary daily to carry bulky materials up and down. It is good economy to have a wide stairway all through a house. In nearly all of our high-stoop city houses there is no water or wash-basin on the main floor, and there is no reason for this defect but the inconceivable stupidity of architects. If an architect can find no other place for a wash basin, let him locate it in a niche in the hall—anywhere, so that he saves the family from the miles and miles of unnecessary fatiguing stair-travel which they otherwise must suffer.—*American Builder.*

RICE BEER.—The brewers in Germany have got to making beer from rice. It is very clear, pale in color and has a pleasant, mild taste, foaming strongly and retaining its carbonic acid.

The woman that maketh a good pudding in silence is better than one that maketh a tart reply.

## LIFE THOUGHTS.

NOTHING is really troublesome that we do willingly.

The world is only saved by the breath of the school-children.

Love is the spark that burns up the mountains of iniquity.

A BEAUTIFUL external life symbolizes a beautiful internal life.

GAIN one clear distinct truth, and it becomes a centre of light.

LEARNING bath gained most by those hooks by which the printers have lost.

THE virtue which requires to be over guarded is scarcely worth the sentinel.

A KIND speech and forgiveness are better than alms, which harm or reproach followeth.

ONLY profound stupidity can always, despite every shock, keep up a belief in its own infallibility.

GREAT efforts from great motives are the best definition of a happy life. The easiest labor is a burden to him who has no motives for performing it.

As in the silence of the night the ear catches the least sound, so, in the solitude of reflection, the mind detects soft and delicate strains of thought, unheard in the bustle of the crowd.

ENJOY the blessings of day, and the evils bear patiently and sweetly, for this day only is ours; we are dead to yesterday, and are not born to the morrow.

WEIGH every step that you are about to take, whenever passions become involved. How often do things assume a different aspect when they are fairly considered.

### The Voyage of Life.

Life hears us on, like the stream of a mighty river. Our boat first glides down the mighty channel—through the playful murmurings of the little brook and the windings of its grassy borders. The trees shed their blossoms; the flowers seem to offer themselves to the young hands; we are happy in hope, and grasp eagerly at the beauties around us, but the stream hurries on, and still our hands are empty. Our course in youth and manhood is along a deeper and wider flood, among objects more striking and magnificent. We are animated at the moving pictures, and enjoyment and industry all around us; we are excited at some short lived disappointment. The stream hears us on, and our griefs are alike left behind. We may be shipwrecked, but we cannot be delayed; whether rough or smooth, the river hastens on till the roar of the ocean is in our ears, the tossing of the waves is beneath our feet, the floods are lifted up around us, and we take our leave of earth and its inhabitants, until of our future voyage there is no witness save the Infinite and Eternal. *Bishop Heber.*

LAUGHTER.—Nothing act so directly on the organs within, both chest and abdomen. Ten hearty laughs, real shonts, will do more to advance the general health and vitality than an hour spent in the best attitudes and motions, if in a sober, solemn spirit. Of course we know you can't laugh at your will, so you must play with your little children, introduce a hundred games which involve competition and fun. Open the folding doors, move back the center table, and go at it. Play with the dog, run for the pins, play any of the games which you can recall from early experience.

A WORD.—Say not a word you had better leave unsaid. A word is a little thing, we know, but it has stirred up a world of strife. Suppressing a word saved many a character—many a life. A word unuttered, and Hamilton would have lived, a pride of his country. Who can tell the good or bad effect of a single word? Be careful what you say.

KIND WORDS are the bright flowers of earth's existence; they make a very paradise of the humblest home the world can show. Use them, and especially around the fireside circle. They are jewels beyond price, and more precious to heal the wounded heart, and make the weighed-down spirit glad, than all other blessings the earth can give.

"I LOVE the man who can smile in trouble, that can gather strength from distress, and grow brave by reflection. It is the business of little minds to shrink; but he whose heart is firm, and whose conscience approves his conduct, will pursue his principles to the death."—*Thomas Paine.*



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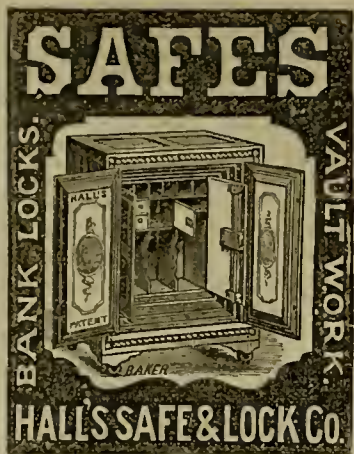
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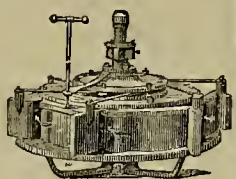
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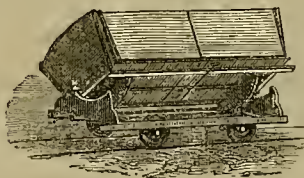
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4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.	Oakland
3:50 P.M.	7:30 A.M.	San Jose	5:30 P.M.	12:15 P.M.	San Jose
7:50 P.M.	12:21 P.M.	Stockton	1:28 P.M.	8:35 P.M.	Stockton
9:33 P.M.	2:10 P.M.	Sacramento	11:45 A.M.	7:40 A.M.	Sacramento
4:10 P.M.	1:30 P.M.	Marysville	9:10 A.M.	6:40 A.M.	Marysville
7:50 P.M.	1:50 P.M.	Sesma	5:40 A.M.	5:40 A.M.	Sesma
2:30 P.M.	1:45 A.M.	Sacramento	11:45 A.M.	8:45 A.M.	Sacramento
8:25 P.M.	1:15 A.M.	Colfax	8:45 A.M.	1:00 A.M.	Colfax
1:15 A.M.	1:15 A.M.	Reno	1:00 A.M.	4:05 P.M.	Winnemucca
9:40 A.M.	12:00 M.	Battle Mountain	1:25 P.M.	8:45 A.M.	Elko
4:40 P.M.	6:20 A.M.	Orden	5:20 P.M.	5:20 P.M.	Orden

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2:40, 4:55, 6:10, and 10:10 p. m.  
LEAVE OAKLAND, 5:25, 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
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City.  
AT CHEYENNE with the DENVER PACIFIC R. R., with  
connection at Denver City with the Kansas Pacific R. R. to  
St. Louis and Southern and Atlantic Cities.  
AT OMAHA, for Chicago, Eastern and other cities, with  
the Chicago and Northwestern; Chicago, Rock Island and  
Pacific; Burlington and Missouri River; St. Joseph and  
Council Bluffs Railroads.

EXPRESS TRAINS RUN DAILY.—The U. P. R. R. use  
the Westinghouse patent air brake; Miller's patent truss  
platform and elastic car-coupler; and the most approved  
construction of cars for the comfort and safety of passen-  
gers.

PULLMAN'S MOST MAGNIFICENT SILVER PALACE  
Sleeping Cars attached to express trains.

T. L. KIMBALL,  
General Passenger Agent, Omaha.



[Continued from page 105.]

machine shop has recently built a number of small propeller engines which are highly recommended for simplicity, compactness and durability. Two of these are to be seen on board of the steamer Coquette at the foot of Third street.

**PORTABLE SAWING MACHINE.**—Mr. Johnson comes from Tuolumne county with a sort of perambulating shop, which comprises a portable sawing machine, combined with hand cart, tool chest and saw mill.

**THE RISDON IRON WORKS** exhibit a powerful steam winch for dock purposes—a splendid piece of machinery of their own manufacture.

**THE ENGINES** employed to drive the machinery in the Pavilion are from the Pacific Iron Works, and are perfect models of neat and substantial workmanship.

#### The Agricultural Department

Is not as full as it might be, yet a very creditable exhibit is made, and of much that is novel.

**A NEW BROAD CAST SEEDER** is exhibited by Mr. W. H. Pope, which is illustrated and described at length on our first page.

**DRAIN AND SUBSOIL IRRIGATION PIPE.**—The Pacific Pottery Company of Sacramento make a very fine exhibit, one of the most interesting features of which is their Drain and Subsoil Irrigation Pipes. These pipes are made of a porous kind of clay in sections of about 20 inches in length, and from 3 to 7 and 8 inches in diameter. Trenches are dug in the adobe ground about fourteen inches deep, and fifteen feet apart, and the pipes are laid in them. All the sections are disjointed and loose gravel is put in where the section ends should touch. The trenches are then filled and the water being turned into the pipes is forced through the pores of the clay and through the gravel between the pipe sections. It is found that this system thoroughly moistens the hardest adobe soil and keeps it wet. The vitrified iron stone drainage pipes manufactured by the company will bear a pressure of 110 pounds to the square inch.

**MR. PERKINS**, the well known seed grower and universal seed distributor exhibits some very fine specimens of yellow and white Silicia sugar beets, grown on Sherman Island. Six of the specimens are from crops grown on the levee. The product yields under analysis, 16 per cent. saccharine substance, which is extraordinary. In addition to the beets, Mr. Perkins exhibits 144 varieties of seeds, and samples of Sherman Island barley, which yielded 90 bushels to the acre, and oats which yielded at the thresher 110 bushels to the acre.

**"THE CALIFORNIA GOLDEN FLEECE,"** is the title given a wool exhibit by Jas. Hartley & Co., No. 41 Clay street. It is a single fleece, weighing 26 pounds, supposed to have been taken from a Merino sheep, nearly pure bred, and the staple averaging ten inches in length. This very extraordinary fleece, worth about its weight in silver, was found in a consignment to Messrs. Hartley & Co., from the northern part of the State, and had passed through several hands before it was finally packed for this city.

Messrs. Hartley & Co., are very anxious to find the remarkable sheep which produced this fleece, or its owner. If this paragraph should meet the eye of the latter, he is requested to put in an appearance at the Pavilion, where honors await him.

**AN ECCALEONION.**—Is one of the most interesting novelties on exhibition in this department. The whole process of egg hatching without the aid of the hen may here be seen. The proprietor will have a brood of chickens out in a few days. This is one of the most approved devices of the kind which has ever been invented. We shall probably be able to give an illustration of the same at an early day.

#### The Wilson Steam Stamp Mill.

The late fire at the Mechanics' mill in this city destroyed the Wilson steam stamp mill intended for exhibition at the Mechanics' Institute Fair. This is to be regretted, inasmuch as many were desirous of witnessing the operation of the mill with the view of verifying or otherwise the statement that it is superior to the ordinary cam mill in durability and cheapness. One of these mills has been in successful operation in Indian District, San Diego Co., for the past 14 months, and during that time, to the personal knowledge of the writer, no repairs have been necessary.

The principle on which this mill operates is that of the direct application of steam to the stamp—the stem acting as a piston. The best results have been obtained with 70 lbs. of steam and 206 drops per minute for each stamp. The average amount of ore which can be crushed in a day (of 24 hours) 23 tons with a No. 6 slot screw and the average consumption of fuel is about one cord of wood to ten tons of ore. As instances of its capacity we may cite the fact that some time since, ten tons and eight hundred pounds of rock was crushed in eight hours and forty-five minutes using only one cord of oak wood. Again in one run fifty-one tons were crushed in forty-seven hours, and 10,800 lbs. in four hours fifty minutes with sixty-eight pounds of steam. Mr. Wilson and many others are naturally much disappointed that, for the reason above mentioned, the mill cannot be on exhibition.

**PATENT BRAKE APPLIED.**—The C. P. R. Co. have attached the Westinghouse air brake to the cars on the local trains on the S. F. & Oakland route. The trains are thus stopped with ease and quickness. A new locomotive, having the compressing apparatus, is run.

**VISITORS AND EXHIBITORS** at the Mechanics' Industrial and Horticultural Fair, in this city, are invited to call and subscribe for the PRESS. We shall give interesting and impartial reports, worth reading and preserving.

**GOOD PAPER.**—Latterly we have been obliged to use printing paper from this market, the regular supply of paper shipped by ourselves from the East having become prematurely exhausted by the rapid increase of the circulation of the PRESS. We are now using our own fine paper again.

**SAN DIEGO SPECIMENS.**—L. B. Hopkins of Julian City, San Diego, has sent to the Mechanics' Fair, a large piece of gold bearing quartz, weighing sixty pounds from the Banner District, as a specimen of the average ore taken out of their mines. It is a fine specimen showing visible the free gold throughout. It is now on exhibition, and all interested in the mines of that portion of the country will examine it closely. It is not bad to look at by anybody.

#### New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

**ERIE MINING CO.**—Capital Stock, \$1,000,000 in 10,000 shares. Trustees: W. B. Bourne, G. D. Roberts, J. W. Gashwiler, S. Heydenfeldt and Maurice Dore.

**PACIFIC GLUE MANUFACTURING CO.**—Capital Stock, \$60,000 in 600 shares. Trustees: W. B. Coddington, G. S. Dana, B. P. Batchelder, J. H. Pitts and F. H. Mills.

**Trade Mark Patents for Merchants and Manufacturers**

Can now be secured to advantage under the NEW LAW

In the United States. Parties interested will be furnished with all information desired, and have their application intelligently prepared and promptly forwarded to the Patent Office, and their patents secured in good time, by DEWEY & CO., U. S. and Foreign Patent Agents, No. 414 Clay street, S. F.

#### Premium for New Subscriptions.

There are many persons not familiar with the value of the Press who would ever after be thankful to our present subscribers for bringing their names on to our list of intelligent readers. Large additions can be made with little effort by the many in this way. We therefore offer (post paid) a premium of one of the patent newspaper file holders (advertised in this paper) for every two new subscriptions received with \$8 advanced payment.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Coconas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. 1c25-ly

**AN ARTICLE OF TRUE MERIT.**—"Brown's BRONCHIAL Troches" are the most popular article in this country or Europe for Throat Diseases and Coughs, and this popularity is based upon real merit, which cannot be said of many other preparations in the market which are really but weak imitations of the genuine Troches.

**A FLORECE SEWING MACHINE**, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at John I. Tay's, Broadway, Oakland. apl-hp-ff

**\$5 to \$20 PER DAY AND NO RISK.**—Do you want a situation as salesman at or near home to introduce our new 4-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 16 Dearborn street, Chicago, Ill. 23yl-12mbp

**LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING MACHINE** against easy monthly installments may apply to No. 294 Bowers, 167 E. 26th, 47 9th Ave., New York Good work at high prices if desired. 21vl-12mbp

**CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.**

**Miners' Foundry and Machine Works,**  
CO-OPERATIVE,  
First Street, bet. Howard and Folsom, SAN FRANCISCO.

**Machinery and Castings of all kinds.**  
7v23ff I. L. MORTHEAP, President.

**Opera Glasses, Pebble Spectacles, and Eyeglasses, in great variety, wholesale and retail. C. MULLER, Optician, 205 Montgomery street, Russ Block, San Francisco.** 7v23-3m

First Premiums awarded by American Institute, N. Y.

**MICROSCOPES.**  
Illustrated Price List sent free.  
**Magic Lanterns and Stereoscopes.**  
Catalogue, priced and illustrated, sent free.  
MCALLISTER, Optician, 49 Nassau street, New York. 3v23-ly

**WE HAVE SENT HUNDREDS OF SINGLE WALTHAM WATCHES**  
To the Pacific Coast  
BY MAIL AND EXPRESS,  
And in every case with satisfaction to the purchaser.

**The Prices are now all Reduced!**

**SOLID SILVER HUNTING WATCHES** as low as \$15.  
**SOLID GOLD HUNTING WATCHES** as low as \$65.

Our Prices are all in Greenbacks, and we deal in none but GENUINE WALTHAM WATCHES. Every one who wants a Watch or feels a desire to be posted, should write to us for our Illustrated History of Watchmaking. It will cost you nothing, as we send it postpaid without charge, and with it a full Catalogue of all the Watches with prices of each. When you receive this you will be surprised at the low rates, and you will then understand our plan of sending Watches to any place, however remote, without any risk to the purchaser.

We send any Watch you order, and let you examine it before you pay for it. Do not order a Watch until you have first sent for the Price List, and when you write please mention the SCIENTIFIC PRESS.

Address in full,

**HOWARD & CO.,**

**Watchmakers and Jewelers,**

**NO. 865 BROADWAY, NEW YORK.**

We have a full stock of extra heavy Cases, such as 4, 5, 6 and 8 oz., always on hand, and can fill all orders promptly. 26vl-bp-av

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#### Democratic State Nominations.

FOR GOVERNOR:.....of Alameda.  
H. H. HAIGHT.....  
FOR LIEUTENANT GOVERNOR:.....of Tehama.  
E. J. LEWIS.....  
For Judges of Supreme Court:  
JACKSON TEMPLE, of Sonoma [for the Short Term].  
S. S. WRIGHT, of San Francisco [for the Full Term].  
FOR SECRETARY OF STATE:  
W. B. C. BROWN.....of Sacramento.  
FOR CONTROLLER:  
R. O. DEWITT.....of Siskiyou.  
FOR STATE TREASURER:  
A. F. CORONEL.....of Los Angeles.  
FOR ATTORNEY-GENERAL:  
JO HAMILTON.....of Placer.  
FOR SURVEYOR-GENERAL:  
JOHN W. BOST.....of Merced.  
FOR STATE PRINTER:  
JOHN T. BARRY.....of San Francisco.  
FOR SUPT. OF PUBLIC INSTRUCTION:  
O. P. FITZGERALD.....of San Francisco.  
FOR CLERK OF SUPREME COURT:  
THOS. LASPEYRE.....of Kern.  
FOR HARBOR COMMISSIONER:  
JOHN ROSENFELD.....of San Francisco.  
FOR CONGRESS—First District:  
LAWRENCE ARCHER.....of Santa Clara.  
FOR CONGRESS—Second District:  
JAS. W. COFFROTH.....of Sacramento.  
FOR CONGRESS—Third District:  
GEORGE PEARCE.....of Sonoma.  
7v2-2whp

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#### LEA & PERRINS'

CELEBRATED

#### Worcestershire Sauce.



Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrine have been forged, L. & P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper. Wholesale and for export by the Proprietors, Worcesters: Cross & Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-lyeow



CHOLERA.

HOW TO CURE IT.

At the commencement of the Cholera, which always precedes an attack of the Cholera, take a teaspoonful of the Pain Killer in sugar and water (hot, if convenient), and then bathe freely the stomach and bowels with the Pain Killer clear. Should the diarrhea or cramps continue, repeat the dose every ten or fifteen minutes until the patient is relieved. In extreme cases, two or more teaspoonfuls may be given at a dose. The Pain Killer, as an internal remedy, has no equal. In cases of Cholera, Summer Complaints, Dyspepsia, Dysentery, Asthma, it cures in one night, by taking it internally, and bathing with it freely. Its action is like magic, when externally applied to Old Sores, Burns, Scalds, and Sprains For Sick Headache and Toothache, don't fail to try it. In short, it is a PAIN KILLER. Directions accompany each bottle. The Pain Killer is sold by all dealers in Medicines. Prices, 25 cents, 50 cents and \$1 per bottle.



## Mining and Other Companies.

Order to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

### Highland Silver Mining Company—Location of works, Railroad District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 13th day of July, 1871, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the Merchants' Exchange, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 11th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 11th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. July 13-7d

### I. X. L. Gold and Silver Mining Company.

Location of works, Silver Mountain District, Alpine County, Cal.  
NOTICE.—The annual meeting of stockholders of the I. X. L. Gold and Silver Mining Company, for the purpose of electing Trustees for the ensuing year, will be held at the office of the company, Pioneer Hall, 408 Montgomery street, San Francisco, California, at 2 o'clock, P. M., Thursday, Sept. 14, 1871.

J. CROWNSHIELD, Secretary.

### Jeinsen Lubricator Company—Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of August, 1871, an assessment of Fifty (50) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 428 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 7th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.  
CALEB T. FAY, Secretary.  
Office, Room No. 7, No. 428 California street. aug12-4w

### Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of August, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Sec'y, at his office, No. 229 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. H. CORNELL, Secretary.  
Office, 229 Clay street, San Francisco. aug12-4w

### Mina Rica Mining Company—Location of works, Auburn District, Placer County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of August, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, No. 48 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 3d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

W. H. WATSON, Secretary.  
Office, Room No. 2, third floor, No. 48 California street, San Francisco, California. aug12-5w

### Nevada Land and Mining Company—Location of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of July, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 5th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 20th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California. July 29-5w

### North America Consolidated Mining Company—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 5th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 24th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. aug12-5w

### Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of August, 1871, an assessment of Fifty (50) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 314 California street. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 25th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. G. BRUSH, Secretary.  
Office, 314 California street, San Francisco. aug12-4w

### St. Patrick Gold Mining Company—Location of Works, Ophir District, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of August, 1871, an assessment of five (5) dollars per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 409 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 26th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 9th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.  
Office: 409 California street, (up stairs) San Francisco, Cal.

## BERRY & PLACE, Importers and Dealers in MACHINERY AND SUPPLIES.

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We keep in stock the above, with a large variety of other Machinery and Small Tools.

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A saving in oil of 75 to 95 per cent. guaranteed. No trouble of "oiling up!" No waste of oil! No oil cans needed!

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### NATHAN & DREYFUS SELF OILERS.

These Oil Cups are too well known to require any lengthy description; the following are the main points of advantage.

We guarantee a saving of  
75 PER CENT OF OIL.

They are composed of a transparent Glass Cup, mounted in Brass, provided with a hollow tube, inside of which is placed a loose acting solid or hollow wire, which acts as a Feeder and Regulator. The wire rests constantly upon the Journal, thereby acting with the bearing in its motion. The wire is so regulated inside the tube as to feed according to the demand only. There is no flow of oil whatever while the machinery is not in motion.

They are as reliable in Winter as in Summer.  
Being a perfectly air tight vessel, the oil will never gum in them, as this has been proven by four years' constant use.

They are constructed in a very neat and substantial manner.

We spare no pains in making them as perfect as it is possible for them to be made, and guarantee them to give perfect and entire satisfaction.

No testimonials are printed, but ask any one who has them what they think of them. Be sure you get Dreyfus'. Send for Circular and Price List to BERRY & PLACE, San Francisco.

### GARDNER & ROBERTSON AUTOMATIC SAFETY STOP GOVERNOR.

After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that it is unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, positive insurance against all accidents liable to occur from slipping or parting the Governor or driving belts, and a convenient arrangement for adjusting the speed of the Engine while in motion, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used, and the machinery employed especially adapted to their manufacture. Thus we warrant these Governors to give perfect regulation of speed under all circumstances, and we will cheerfully refund the money, after a trial if not satisfactory. We keep a large assortment on hand.

When ordering, be particular to say Governor with THROTTLE VALVE or WITHOUT THROTTLE VALVE; and either BLACK or FINISHED, as you may require. Send for Price List to BERRY & PLACE, San Francisco.

### Nathan & Dreyfus Automatic Cylinder Lubricator.

In introducing this valuable Cup to the public, we desire to call very particular attention to its many special advantages: First—Nothing but clean oil or tallow is admitted into the Cylinder, no fine or sediment of any kind. Second—Its great economy of both tallow and fuel. Third—It is self acting, and applies the lubricating material only while the Engine is in motion. Fourth—Its certainty and regularity of feeding, and increase of the power of the Engine.

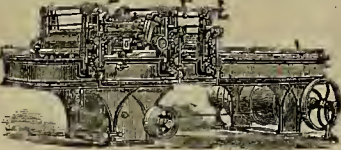
The principle upon which this apparatus is founded is that, instead of admitting tallow into the Cylinder in considerable quantities at uncertain intervals by means of tallow cups, grease cups, and other crude contrivances, and allowing it to be in fact blown out at the exhaust (as must necessarily be the case), this Cup, by its peculiar action, delivers the lubricant in drops into the body of the steam, which thereby becomes thoroughly impregnated or greased before passing into the steam chest or Cylinder; the consequence is, that instead of falling to the bottom of the Cylinder, as it does when admitted through a tallow cup (which passes the lubricant from the bottom of the Cup to the Cylinder), it enters into the form of minute globules, and hence the whole of the internal parts of the engine become regularly and constantly greased. The result of its action has been proved in a very great number of cases to be an enormous saving of tallow, a considerable increase in the power of the engine, a great saving in fuel, and reduction of internal friction to a minimum.

These Lubricators will save you 75 per cent. of the Lubricating Material, and cost no more than the common Compression Cups.

For further information, or Price Lists, address BERRY & PLACE, Importers Machinery and Mill Supplies, Warerooms, 112 and 114 California street, San Francisco.

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With Patent Expansion Feed Gears and other Improvements. Also, every description of the most improved

### Patent Wood-Working Machinery,

Embracing Mortising, Sash and Moulding, Slat and Door Tenoning, Boring, Shaping, Scroll and Improved Band Sawing, Wiring, Mitering, Cut-off Sawing, Wood-Turning, Side-Jointing, Re-sawing Machines, and in fact every description of Labor-saving Machinery for Saw-Mills, Sash and Door Factories, etc.

A large assortment of Planer Knives, Saw Arhorns, Knife Grinders, Moulding Heads, Mortising Chisels, Matcher Seta, Band-Saw Blades, Saw Gauges, Door Clamps, Leather Belting, Sole Leather, Belt Studs, etc., etc., for sale at Eastern Prices, at the Machinery Depot of

217-22-4f

BERRY & PLACE, 112 and 114 California St., San Francisco.

### Tecumseh Gold, Silver and Copper Mining Company—Location of Works, Gopher District, Calaveras county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of July, 1871, an assessment of five dollars (\$5) per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herma, at the office of the company, 516 Kearny street. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
F. J. HERMA, Secretary.  
Office, 516 Kearny street, San Francisco. aug13d

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Importers of and Dealers in

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This Trap, as may be seen, is of simple construction, and not likely to get out of order, and very durable.

It is Very Efficient

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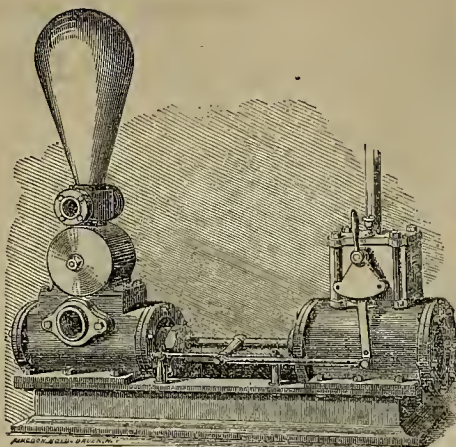
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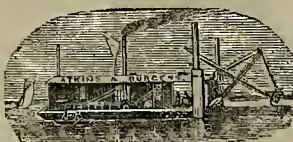
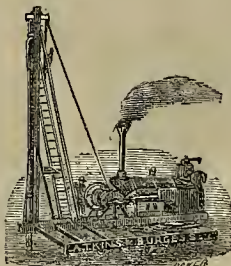
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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

**STEAM ENGINES,**

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Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

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Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

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To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

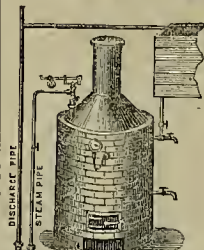
to do and he all we claim for it.

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by the cry of "Humbly," but call and investigate its merits. One can always be seen at the Pacific Iron Works. Ten of these Mills are now in operation. For further particulars address

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**STEAM JET PUMP.****Blakeslee & Williams' Patent.—For**  
**Water, Oils, Acids, Etc.**

The best cold water pump for filling tanks for stationary or portable Steam Engines. Also highly recommended for MINES, DISTILLERIES, SALT WORKS, STONE QUARRIES, and similar places, and saves the expense of putting up and running an engine.

We ask the attention of all proprietors of steam power to the following points of merit:—It is operated by steam taken directly from the Boiler into the Pump; it has no valve or wearing parts of any kind; it requires no belts, pulleys, or machinery of any kind; it operates entirely independent of an engine; it will not choke up with foul water; it costs much less to put up and start; it will not wear out in a lifetime, or require repairs; it is reliable, and certain to work at all times; it is not liable to injury from freezing.

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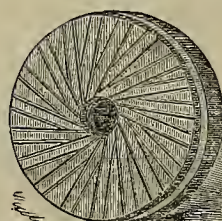
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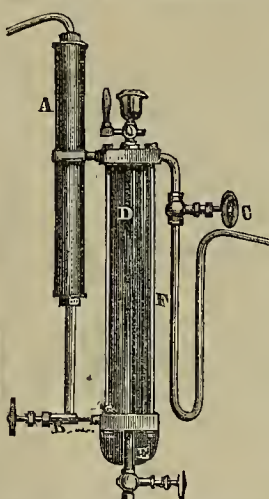
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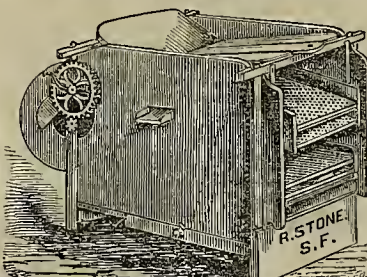
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Or: "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, COR. Mission &amp; Fremont streets, San Francisco.

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**THE PATENT****Novelty Mill and Grain Separator**

Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

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RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1200 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-lye

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For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been or will be spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.  
They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.  
The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.  
Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

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PIPE of all sizes, of a very superior quality, is now being made at the  
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In this city, under the Patents of Farrar & Whiting.  
28v22-3m GODDARD & CO.

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PATENT CIRCULATING

## STEAM BOILER.

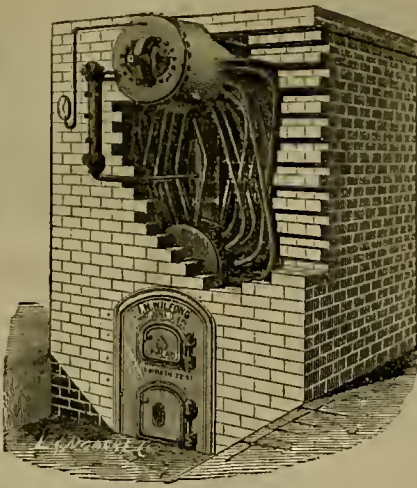
This cut represents an improvement on the old style of Cylinder Boiler, and combines all the following great advantages: Rapid circulation and generation of steam; economy in fuel; durability, safety, and simplicity of construction; requires but little attention; is easily repaired, and moderate at first cost.

We have now a number in successful operation, and respectfully refer to the following well known parties: Hastings & Co., Seventh and Cherry streets; Jos. Lea & Co., 128 Chestnut street; J. S. Huber, Germantown; Holt & Bro., Sixth and Susquehanna avenue; Albion Print Works, Conshohocken, Pa.; S. H. Dickey, Oxford, Pa.—all of which are giving ENTIRE SATISFACTION. Parties wishing to investigate the success of our new Boiler can do so by calling at any of the above named places, or to

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F. I. O'URRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

## BOILERS

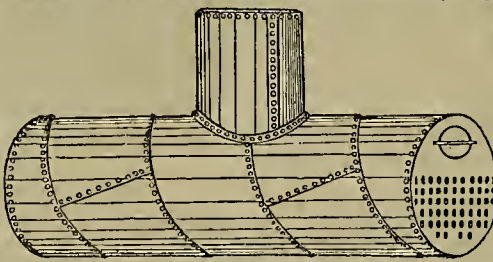
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SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



Sheet Iron Work

every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

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Repairing

Promptly Attended to.

## To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

## THE GRICE & LONG LOCOMOTIVE WORKS,

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Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quisries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

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THE

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Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.  
All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.  
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AGENTS FOR

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MANUFACTURERS OF  
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.  
13 and 15 Fremont street, near Market, San Francisco.  
16v14-9

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Sects and Creeds differ, but there are no dissenters from the general principle, that a great medicine is a great blessing. We have many of these blessings, but among them all, in the province to which it belongs, no greater than

Tarrant's Effervescent Seltzer Aperient.

A column would not suffice to enumerate the ailments for which it is prescribed by physicians of the highest standing. It does not belong to the class derisively termed patent medicines, but is an article based on scientific analysis, and will stand the test of the sharpest and most rigid medical criticism as a cathartic, a stomachic, an anti-febrile preparation, and an admirable remedy for all bilious complaints. LET THERE BE NO MISTAKE. SECURE THE GENUINE ARTICLE ONLY.  
SOLD BY ALL DRUGGISTS.



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OF THE

## Northern Pacific Railroad.

RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (begun July last) is being pushed forward with great energy from both extremities of the line. Several thousand men are employed in Minnesota and on the Pacific coast. The grade is nearly completed 266 miles westward from Lake Superior; trains are running over 130 miles of finished road, and track-laying is progressing at the rate of one to two miles per day. Including its purchase of the St. Paul & Pacific Road, the Northern Pacific Company now has 413 miles of completed road, and by September next this will be increased to at least 560.

A GOOD INVESTMENT. We are now selling, and unhesitatingly recommend, as a profitable and perfectly safe investment, the First Mortgage Land Grant Gold Bonds of the Northern Pacific Railroad Company. They have 30 years to run, bear Seven and Three-tenths per cent. gold interest (more than 8 per cent. currency), and are secured by first and only mortgage on the ENTIRE ROAD AND ITS EQUIPMENT, and also are now selling, at 23,000 ACRES OF LAND to every mile of track, or 500 Acres for each \$1,000 Bond. They are exempt from U. S. Tax; Principal and Interest are payable in Gold; Denominations: Coupons, \$100 to \$1,000; Registered, \$100 to \$10,000.

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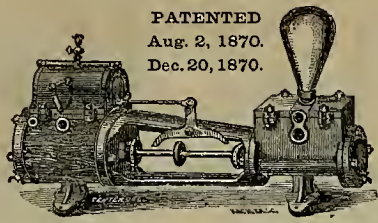
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SAN FRANCISCO, SATURDAY, AUGUST 26, 1871.

VOLUME XXIII.  
Number 8.

## The Akin Roasting Furnace.

Mr. J. S. Akin, of Rye Patch, Nevada, has lately received a patent, through the SCIENTIFIC PRESS Patent Agency, for a furnace for roasting ores. In this furnace he claims to be able to extract 80 per cent. of the silver which may be in galena ore, the bullion to be 990 fine; and 85 per cent. of the gold and silver from silver ore containing gold, antimony, copper, arsenic and sulphur, producing bullion 995 fine. The starting of Mr. Akin's furnace at Rye Patch produced results that created considerable encouragement to the mining interest of that locality. He now invites parties contemplating the building of roasting furnaces to visit Rye Patch and witness the operations of his furnace. He says that the cost of passing ore through the furnace does not exceed \$2.50 per ton where the ore is crushed dry.

The following illustration will explain the construction of the device: Here *A* represents the feeding stack of a furnace, the whole of which may be built of brick, stone, or adobes. This stack is covered on the top; has an opening, *B*, leading into it at one side near the top, and connecting with the feeding hopper, *C*, and also with the fan, *D*, or other means of producing a blast. The hopper is inclined, and at its mouth opens into the upper part of the passage, *B*, and close to the stack. The ore is crushed by batteries conveniently situated and then conveyed by a screw and elevated to the hopper, *C*. As it passes down, it is caught by the blast of air from the passage, *B*, and finely distributed through the interior of the upper part of the stack, and thence falls slowly to the bottom and distributes on the revolving hearths, *H* and *K*. Two fire-places, *E* and *F*, are situated at either side of the stack, and the heated air and gas are conveyed

by flues directly into the upper part of the stack so as to descend with the falling ore.

*G*, near the bottom, is a fire-place to keep a flame on the ore on the revolving hearths, *K*. At the bottom of the stack is a revolving hearth, *H*, formed of iron or fire-brick and supported by a shaft which passes through the center from front to rear. A crank or lever on the outside of the furnace, serves to quickly rotate the hearth and discharge its contents when sufficiently roasted, and again immediately closed airtight, so as to preserve the downward draught. A series of similar revolving hearths, *K*, *K*, are arranged on the same level as the hearth *H*, and beneath each is a pit, *L*, with inclined bottoms or cooling floor, *M*, so that the discharged contents of the hearths can be easily raked out and cooled and thence fed to the amalgamators. The hearths are separated by diaphragms, or party walls, *N*, which are pierced by openings, *O*, at different heights. Only the heavier portions of the ore will fall on hearth *H*, the lighter portions will be

and *R*, are so constructed as to serve as a drying hearth for the ore before it is put into the battery.

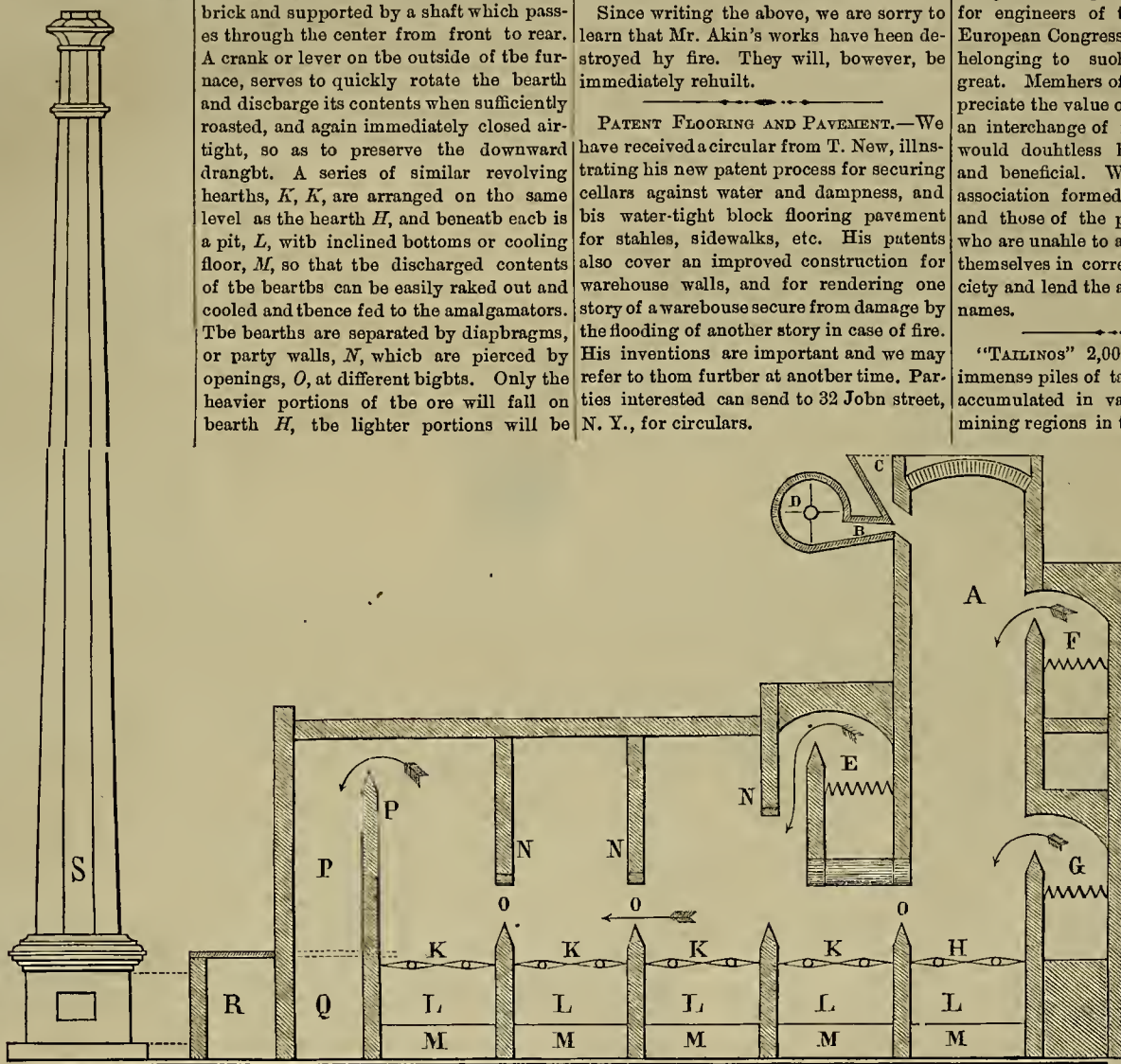
For further information, apply to Wies-ter & Co., 17 New Montgomery street, San Francisco.

Since writing the above, we are sorry to learn that Mr. Akin's works have been destroyed by fire. They will, however, be immediately rebuilt.

**PATENT FLOORING AND PAVEMENT.**—We have received a circular from T. New, illustrating his new patent process for securing cellars against water and dampness, and his water-tight block flooring pavement for stables, sidewalks, etc. His patents also cover an improved construction for warehouse walls, and for rendering one story of a warehouse secure from damage by the flooding of another story in case of fire. His inventions are important and we may refer to them further at another time. Parties interested can send to 32 John street, N. Y., for circulars.

**INTERNATIONAL ASSOCIATION OF MINING ENGINEERS AND METALLURGISTS.**—The question of establishing an International Congress of Mining Engineers and Metallurgists is being agitated in Dresden, Germany. Although it would seem difficult for engineers of this coast to attend an European Congress, still the advantage of belonging to such a society would be great. Members of other professions appreciate the value of such gatherings, and an interchange of ideas among engineers would doubtless be mutually agreeable and beneficial. We hope to see such an association formed under good auspices, and those of the profession on this coast who are unable to attend can at least place themselves in correspondence with the society and lend the aid of their purses and names.

**"TAILINGS" 2,000 YEARS HENCE.**—The immense piles of tailings which are being accumulated in various portions of the mining regions in this State and Nevada, are suggestive of the thoughtful mind of something similar to the following, which we find in a late number of the *Australasian*:—"In the year 4,000 or thereabouts, when the Anglo-Australian race shall have been 'played out' on this continent, and our posterity shall have degenerated as the Greeks have done, will the New Zealander of the period, accomplished in arts which are unknown to us, and armed with scientific appliances, such as we have never dreamed of, come over to Victoria and extract



AKIN'S PATENT ROASTING FURNACE.

carried by the draught into the different chambers over the hearths *K*, and the finest ore will be deposited the farthest from the stack. Small openings may be made in the furnace wall, and through these the progress of the roasting can be tested from time to time; when finished, the contents of any hearth can be discharged into the pit below. The heated air and gases escape over a bridge wall, *P*, and at the bottom of the flue, *P*, will enter a horizontal flue, *Q*, through which they pass and then return by a similar flue, *R*, to the chimney. Any small portions of finely pulverized ore which may be carried over the wall, *P*, will be deposited at the bottom of the flue, *P*, and in the passage, *Q*, from which it can be afterward removed by suitable doors. The top of the flues, *Q*

**THE NEW ALLOY OF COPPER AND IRON.**—Alfred Mead, editor of the *Lake Superior Miner*, Ontonagon, Mich., writes us for further information about Dr. Myers' process for forming a hard alloy of copper and iron, stating the belief that the region of iron and copper ores in Michigan would be one of the best of locations for the manufacture of the new alloy. The Doctor keeps his process a secret and we cannot give assurance of its success yet, but will report progress when positive of it.

**POSTAGE ON ENGRAVINGS.**—It is important to many not yet informed, that wood cuts and electrotypes for printing illustrations can be sent through the U. S. mails at the same rates as newspaper postage. Letter postage has hitherto been charged.

tons of gold from the tailings in our desolate and deserted gold field! The question is suggested by what is actually taking place in Attica. About 300 years before the Christian era, the silver mines of Laurium were exhausted and abandoned; but seven years ago a Franco-Italian Company obtained a concession to treat the scoria and other refuse for silver, and their operations have been conducted on so large a scale that a town containing 4,000 inhabitants has sprung up on what was formerly a solitude; a railway has been constructed to the nearest port and a small steam vessel plies twice a week between Argostera and the Piræus for the transport of the argentiferous tailings to the roasting furnaces."

LONDON has 200 female medical students.



# MECHANICAL PROGRESS.

## Iron for Church Edifices.

A new and most important use has recently been found for the universal metal, which is so indelibly stamping its name upon almost every department of progress in this remarkable age. Iron, which has for a long time been largely employed for ship building and for business structures, is now also being used in the city of Brooklyn (N. Y.) in the construction of church edifices. It is found to possess most excellent acoustic properties, can be heated quicker and at less expense than any other kind of structure, while the cost of construction is vastly reduced. Two iron churches have already been constructed in that city; a third is in process of erection; a fourth has been contracted for, and a fifth has its plans completed.

The third, now in process of construction, will cost \$61,000, and is expected to excel in every particular a neighboring church lately erected at a cost of \$220,000. The last mentioned, which has just been planned, includes an auditorium occupying a single floor, unbroken by column or gallery, and covered by a roof of 100 feet span.

It is now claimed by the Brooklyn architects that an iron church can be built for at least one-half less than one of stone of the same capacity; while it will be quite as comfortable, commodious and imposing, and with improved acoustic properties. It is believed that a "new departure" has thus been reached in ecclesiastic architecture.

**MUZZLE VERSUS BREACH-LOADING ORDNANCE.**—Experiments have lately been instituted by the English, at Shoeburyness, with a view to ascertain the relative merits of muzzle and breach-loading ordnance. The guns employed were the Prussian breach-loading, steel, nine pounder, and the English muzzle loading, steel lined, coil gun. The results are quite interesting and seem to establish the superiority of the muzzle loader for accuracy, and rapidity of fire, as well as range. These experiments seem also to contradict the generally received opinion that the Prussian breach loading steel gun is of such superior merit as has been stated.

**AN INGENIOUS DEVICE.**—An exchange describes an ingenious apparatus now in use on the Chicago, Burlington & Quincy road, which employs electricity as an agent to assist in filling locomotive tanks with water. The steam pump which supplies the tank is situated on a stream half a mile distant, and entirely out of sight. A float is so arranged that, when water is drawn off more than two or three inches below the top of the tank, a circuit is closed connected by wires with the pump-house. This sets a bell ringing within hearing of the engineer, who starts the pump and runs it until the tank is full, which is duly announced by the cessation of the alarm. The application of a similar apparatus for the direction of lowness of water in stationary steam boilers might be made, we think, to answer a good purpose, by reminding delinquent engineers of their duty before it is too late to perform it.—*Ex.*

The new railway on the Rigi, has been opened. It runs to a height of 5,000 feet, and is constructed with three rails, the middle one of which is a rack intended to work with a pawl attached to the locomotive. Each train is composed of engine and two carriages holding about sixty persons. The engine either pushes or retards the train, and does not draw it, being always at the lower end of the carriages. The fare is 5s. for the ascent, and 3s. for the descent.

**ABSORPTION OF GAS BY CHARCOAL UNDER INCREASED PRESSURE.**—Mr. Hunter, of London, has lately shown that the quantity of gas absorbed by charcoal increases with the amount of pressure to which it is exposed; and that equal variation in pressure produces nearly equal variation in the quantity of the absorbed gas.

## Effects of Cold on Metal.

We have previously taken occasion to express the hope that an extensive series of thoroughly practical experiments might be carried out by competent parties to determine to what extent the strength of metals is affected by extreme cold. In this connection, we quoted the results of trials that were made by the Darlington Iron Company in November, 1869, and described by a foreign cotemporary. The rails were taken promiscuously from a lot of 1,000 all supposed to be of the same quality, weight, and exact section. It had been found that the rails which were then in course of manufacture for the East Indian railways at these works, and which were of a very high quality, failed to pass the required test in frosty weather, whereas in ordinary temperatures a failure was a very rare occurrence. The ten rails were accordingly selected to settle the question whether higher and lower temperature affected the strength of the rails. Four rails were heated up to 120° Fahr.; the other six were tested cold, the temperature of the atmosphere being about 26°. At 120°, all the bars stood two 5-ft. blows, and one 8-ft. blow. At 26°, only one bar stood two 5-ft. blows, three broke at the second 5-ft. blow, and one at the first 5-ft. blow. At 60°, all would probably have passed the test easily, many thousands having previously done so from the same lot. It will therefore be seen that the results are in perfect agreement in all these experiments, showing that bar-iron, boiler plates, wire billets, and rails are most literally weakened by the action of intense cold, losing all their toughness, becoming quite brittle under sudden impact, and having their structures changed from fibrous to crystalline. Similar instances could be given in illustration of this in the daily practice of engineering. In large works the breakages of wrought-iron are very considerable during frosts. Quarrymen find that their chains are very liable to fracture from the same cause; and, doubtless, the numerous accidents of failing tires in our railways may be attributable to it. In many cases, however, the contraction of iron must also be taken into account, as it is a serious item. It cannot be doubted that iron does become very much weaker, both in its cast and wrought state, under the influence of low temperatures.—*Am. Artisan.*

**PILING AND SELECTION OF SCRAP.**—Some of the inferior articles rolled from scrap-iron, such as axles, owe that inferiority to the careless manner in which the "piles" are made up, by children and persons entirely ignorant of the peculiar properties of iron and steel. At the works where this scrap is used, some of the softest and toughest iron, bolts, wire, hoop-iron, old files, axes, saws, etc., are indiscriminately mixed together. To a certain extent each of these qualities have their peculiar welding points. When worked together, one portion that is less refined is too much heated, and consequently deteriorated, before the more highly refined portions have reached a welding heat, and are thus placed in the awkward dilemma of either burning the one or being unable to weld the other. The selection and piling of scrap-iron for axles is intrusted only to "experts," or those who have had long experience in the selection and working of metals; and car-axes made at these establishments have a reputation, and stand tests both theoretical and practical, such as show that this discrimination in selection of the material is a perfectly practical manner. When the selection is left, however, to the careless and incapable, the imperfections in piling become a sure source of danger and disaster.—*Ex.*

**COPPER COATING.**—The production of sheet-iron plates coated with copper and brass is a new branch of industry in England. It is claimed for the product that the plates present great advantages to the makers of finished goods, compared with tin or galvanized plates, as they can be annealed, which is requisited during the process of stamping, without injury to the copper or brass coating; and that they also are superior to sheet copper or sheet brass, because articles manufactured from them are not so readily bent or dented as when they are made of brass or copper, and they can be burnished, planished, or spun, and so brought up to any required degree of finish.

The salt formed in the boilers of a large steamer would, if not prevented by flowing off or surface condensation, amount to 20 tons per day.

# SCIENTIFIC PROGRESS.

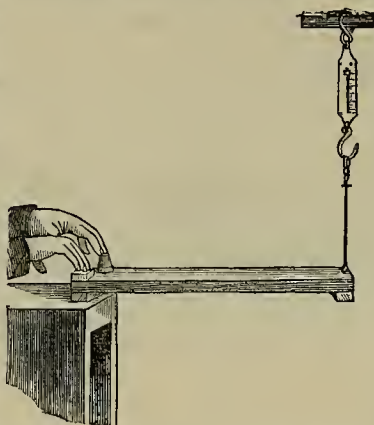
## Experimental Investigation of a New Force.

### A Spiritualist Among the Scientists.

The last London Quarterly *Journal of Science* contains an article from William Crooks, Esq., a gentleman well known in scientific circles, in which he gives the details (with illustrations) of some experiments which he has recently made, with Mr. D. D. Home, the celebrated "spiritual medium," so called. The experiments were made in the presence of Dr. Wm. Huggins, the distinguished astronomer, and Edward W. Cox, a well known London lawyer. Both of these gentlemen endorse the statement put forth by Mr. Crooks. We condense from the article in question as follows:

The object of these experiments were first,—to test the genuineness of the phenomena produced, and, second,—to account, if possible, for their occurrence.

The first experiment was the production of musical sounds upon an accordion, under conditions which rendered the contact of hands to actuate the keys a physical impossibility. Mr. Home first held



the instrument in his left hand, reversed—the keys hanging down. When thus held in suspension, tunes were played on the lower or key-board portion of the instrument, at the same time oscillating back and forth. After this exhibition, Mr. H. let go the instrument entirely, and it still continued to give forth harmonious sounds as before, while floating about, with no visible means of support!

His next experiment was quite as remarkable, and consisted in the employment of a board 36 inches long, with one end resting upon a firm support, while the other was hanging to a delicate spring balance, as shown in the engraving.

Mr. Home placed the tip of his fingers lightly upon the extreme end of the board which rested upon the support, while Mr. Crooks and his assistant watched the movements of the indicator of the balance. The pointer almost immediately descended, and continued to oscillate up and down at short intervals, for some time. The additional weight indicated at the opposite end varied in the oscillations from 3½ to 6 pounds. Mr. Home then, of his own accord, took a small hand bell and a little can match-box, which happened to be near, and placed one under each hand, as shown in the engraving, to show, as he said, that he was not giving weight to the opposite end by pressure. Afterwards, in order to test the effect of simple pressure, Mr. Crooks applied his entire weight (140 pounds) by stepping upon the point where Mr. H. placed his fingers. The result was a depression of the pointer 1½ to 2 pounds, when he jerked down—produced, as he supposed by his toes projecting a little over the fulcrum, which was carefully guarded against during the contact of Mr. Home's fingers with the board.

The above experiments were not confined to a single evening; but were repeated some half a dozen times, always attended with essentially the same phenomena. Many other experiments were also tried and were attended with almost or quite equally remarkable phenomena.

The above facts are given in the *Journal of Science* quite in detail and with elaborate

rate illustrations, which show the utter impossibility of any trick or collusion being resorted to by Mr. Home.

The conclusion to which Mr. Crooks and his assistants arrive is "the existence of a new force in some unknown manner connected with the human organization, and which for convenience may be called Psychic Force."

Respecting the nature of this force and the correlation existing between it and other forces of Nature, Mr. Crooks does not hazard even the most vague hypothesis.

Both Mr. Huggins and Mr. Cox fully endorse the statement of facts set forth by Mr. Crooks, and Mr. Cox, in his endorsement remarks that—"The results appear to conclusively establish the important fact that there is a force proceeding from the nerve system, capable of imparting weight and motion to solid bodies within the sphere of its influence." He also adds—"I can find no evidence tending to prove that this force is other than a force proceeding from or directly dependent upon, the human organization, and it is therefore, like all other forces of nature, wholly within the province of strictly scientific investigation."

Mr. Crooks, in concluding his remarks says: "In the presence of strange phenomena, as yet unexplored and unexplained, following each other in such rapid succession, I confess it is difficult to avoid clothing their record in language of a sensational character. But to be successful, an enquiry of this kind must be undertaken by the philosopher, without prejudice and without sentiment. Romantic and superstitious ideas should be entirely banished, and the steps of his investigation, should be guided by intellect as cold and passionless as the instrument he uses. Having once satisfied himself that he is on the track of a new truth, that single object should animate him to pursue it, without regarding whether the facts which occur before his eyes are "naturally possible or impossible."

It may be proper to mention, further, in this connection that the most elaborate measures were taken to prevent any deception on the part of the medium. The experiments were made at Mr. Crooks's residence, and the room and all the apparatus was prepared by Mr. C. himself. On the special trial here detailed, and which was designed for a crucial one, the accordion was purchased by Mr. Crooks on the day the experiments were made. Mr. Crooks, when he called for Mr. Home, accompanied him to his dressing room, when he (Mr. H.) disrobed himself, and put on an entire change of garments, so as to prevent the least suspicion of there being machinery about his person to assist in the development of the phenomena.

The undoubted character of the gentlemen named, and their well known scientific and critical acumen, must place the existence of the facts which they detail entirely beyond all reach of cavil, by their brother scientists.

**ORIGIN OF HAIL.**—Prof. Reinch announces that it is impossible, in the present state of our knowledge, to proclaim a theory which shall satisfactorily explain the origin of this meteorological phenomenon.

Thus it may be safely asserted, (we quote from *Journal of the Franklin Institute*) that the conditions originating it are different from those producing the deposition of rain or snow, or that these conditions are more intense in character; yet a microscopic examination of hail proves that the conditions originating it are by no means always the same, for the structure of the product is rarely the same. He mentions the curious fact that in some hail which he examined beneath the microscope, there was found at the centers of the stones a spherical globule, which proved to be air. When those globules were nearly freed by the melting of their icy confinements, they burst the last portions of the shell with energy, and expanding, occupied in a bubble form a space more than fifty times greater than when confined; showing that they had been subject to a pressure equivalent to more than fifty atmospheres! Cold may possibly have had some part in this diminution of volume; but the temperature necessary to produce so great a reduction in volume must have reached—214° C. at the point where the hail was formed—if cold had been the only cause in play. Whatever explanation is assigned to this interesting observation, it must certainly be regarded as the most unexpected one which has yet appeared to the study of this puzzling phenomenon. Prof. R. recommends the diligent use of the microscope as the only means of solving the problem of the history of hail.



## CORRESPONDENCE.

### A Trip to Colorado.—No. 7.

BY OUR OWN TRAVELER.

#### Nevada City—One Mile from Central City.

On the California mine situated on the California lode they are sinking and improving and are already down a good depth. Ore yields from 8 to 12 ounces per cord, by milling process, and would go from two to six ounces per ton by smelting. They have all their work done at custom mills. The mine, in 1869, netted over \$100,000. The lode is from four to five feet wide and pitches to the south. There are 600 feet in the claim and it is owned by W. J. Stalker.

#### Slaughter House Mins.

This lode is located on Prize Hill and has about 20 inches of pay rock, assaying \$200 per ton. It is somewhat decomposed and is known as *gessan*. Messrs. Noylos, Longest & Tapping are the owners and they employ 6 men in the mine.

#### On the Jones Leds

They are down 200 feet and the average width is 8 inches. This ore contains considerable sulphurets.

#### The North Star Mill and Mins

Has been started up after a long interval of inactivity. This mine is located on the the Illinois lode about two miles S. W. from Central City on Quartz Hill. They have a 22-stamp mill, double discharge battery and copper plates. The engine is 75-horse power. Black's crushers are used. They are down 225 feet and the vein averages from two to four feet in width. Mr. W. J. Fuller is Supt.

On my way up to Nevada City I noticed that a water-power quartz mill was being constructed by Mr. P. Ruh. The wheel is 26 feet in diameter and is to run 6 stamps. I observed also that what is known as the Lexington mill between Central City and Nevada City, which was built in 1861, has been started up after being idle for some time past. They are about introducing the well known Stevenson Pan of which your valuable and enterprising paper has given an illustration. This is what is wanted in this section of country, and will be in operation in a few days. So we will see what can be done with it on Colorado ores. We will be particular in looking at the results, and if a favorable return is made I am assured that some 50 or more pans will be ordered for other mills.

#### The Kansas Leds

Located on the mountain between Central and Nevada City, is one of the best mines in the Territory. The well-known Hardesty Bros. own 350 feet on this ledge. They have three shafts on their claim. A large number of claims are located on this lode in small sections, say from 100 to 300 feet, and are now leased out to miners who work for one-fourth of the proceeds.

No. 1 is leased by Messrs. Gray, Bennett & Co., who employ 30 men and have sunk 120 feet in their shaft. The ore yields from 8 to 11 ounces to the cord. The smelting ore brings \$55 per ton in the hands of Messrs. Hill & Co. This company raised enough ore to pay them \$1,000 per day last week. They have a small 12-horse power engine. As I said before, the lode belongs to the Hardesty Bros. Mr. M. H. Root is Supt. This is a good part of the ledge. I say this as I have conversed with some other miners who seemed to be only sinking on the same lode, but in a very poor part of it.

Nearly all the mills now in operation are being supplied from this very rich vein and a few others. Jas. Madison discovered it in 1859. The ore contains copper and iron auriferous pyrites and will average from 4 to 12 ounces per cord; the best will go from \$90 to \$116 to the ton. Hardesty & Bro. own a fine 12-stamp mill near Nevada, at present running on ore from the "Kansas" which averages from \$6 to \$12 per cord. W. H. M.

### Colorado to Utah.—No. 8.

BY OUR OWN TRAVELER.

I left Denver at 7½ A. M., passing through Evans and Greeley cities on the road.

#### Greeley City

Has, I understand, about 1,500 inhabitants. There are about 500 houses and two hotels. The place is one mile square. They have invested \$4,000 in building ditches for the purpose of irrigation. There is at present upwards of 50,000 acres of land in cultivation in the vicinity and the property is valued at nearly \$800,000. This is the largest settlement between Denver and Cheyenne. Evans and Greeley are the principal cities in this county. I arrived at

#### Chesynne, Wyoming Territory.

At 12 o'clock, where we connected with the westward overland train of the U. P. R. R. We had ample time to partake of an elegant dinner at the R. R. station, a large house kept by G. M. Jones.

Cheyenne is the commercial center of Wyoming, situated in the valley of Crow Creek at the eastern base of the Black Hills, about 500 miles east of Salt Lake City. It derives its importance from the fact of its being a distributing depot of supplies for this trade of Wyoming and a part of Colorado. It is the junction of two lines of railway and another line has been organized under the name of the Cheyenne Iron Mountain & Helena R. R. The latter is to extend by the way of Forts Fetterman, Reno, and Phil Kearney, along the eastern base of the Big Horn Mountains to the Yellowstone river and to Helena, Montana, intersecting the Northern Pacific. This route will open up a country rich in mineral and agricultural resources.

Cheyenne contains about 2,500 inhabitants. There are immense masses of very rich iron ore found just north of the city. It is expected that when these leads are developed and the iron brought to Cheyenne for manufacture it will materially advance the prospects of the place. There are five churches, the Catholic, Episcopal, Congregational, Presbyterian, and Methodist. The city is watered by a ditch from an adjacent creek and small streams run along the sidewalks for the purpose of irrigating the trees which will in course of time tend to enhance the beauty of the place.

At 1:15 P. M. I took my seat in the finest Pullman Palace Car

On the U. P. R. R., known as the Palmyra. This car has six-wheel trucks and weighs 35 tons, almost as much as a freight car loaded with goods. It contains 28 beds and, there being one of Burdett's fine organs, some of the passengers amused themselves and us, by playing in the evening. After tea we sang some

#### Songs and Old Hymns,

The clear soprano voices of the ladies chiming in with the harsher, but still harmonious tones of the men, made the car ring with solemn notes, blending sweetly on the evening air with the steady rolling accompaniment of our carriage, drawn on by its remorseless, untiring master, the oft-mentioned "Iron Horse," the sure signal of civilization and advancement.

After the sun has gone down in all its glory of purple and gold, and we have enjoyed our evening smoke, which no one appreciates so much as a traveler, for a cigar is a companion we can always "fall back" upon, failing congenial friends, we betake ourselves to our couches, where one can sleep as comfortably as in a hotel. Moreover, we are able to sleep by the rattle of the rail which is far from disagreeable to one accustomed to railroad travel. These cars are made by the Pullman Palace Car Company.

Which was organized in 1867 in Chicago, with a capital of \$1,000,000, and it now has in its leased and co-operative agencies, a capital of \$8,000,000. Moreover, it gives employment to over 3,000 men in its "running" department.

#### Railroad Traveling made Luxurious.

Like the labor-saving inventions of this century, this enterprise transforms into pleasure what was heretofore at best, attended with weariness and danger. Now from the Pacific to the Atlantic, we can

travel without anxiety, and the good management, care and courteous vigilance of the agents enable us to travel with safety, and moreover, have all the comforts of a home without the inconveniences generally considered indispensable. The Pullman Pacific Car Company has charge of the sleeping cars on the U. P. R. R. No. 21 sleeping car being under the general superintendency of Mr. L. M. Bennett and Mr. Geo. M. Pullman, President and General Manager.

#### Sherman

Is 1,365 miles from San Francisco. It is situated at an elevation of 8,242 feet. I have a fine sample iron ore which is found in large quantities one-half mile from the station. It was given to me by John Harich, better known as "Uncle John." It is said coal can be had about thirty miles distant. I also secured a fine shell found on the top of one of these mountains only a mile from this place. It is very manifest from this and other evidences that this was at one time, ages ago, the bed of a large body of water or sea. The rocks seem to be washed and stand up prominently in many places. A few miles distant may be seen what are known as the "Red Buttes." I learn that we are traveling at the rate of 20 miles an hour. On the "west end" the grades are heavy hence the slow time.

This train left Omaha at noon on the 5th of July and passed west 132 miles. At "Lone Tree" station they encountered a terrible hail storm and I learn from the conductor and passengers, that this was the largest and heaviest storm they had ever seen or heard of. Passing on we arrive at

#### Laramie City

Which is 575 miles from Sacramento and is at an elevation of 7,122 feet. Passenger trains stop here 30 minutes for meals. Cozzus's Hotel belonging to the R. R. Co., is a fine building. Mr. L. Fillmore is Supt. of the Western Division from Cheyenne to Ogden, and Mr. S. H. H. Clark Supt. of the Eastern division from Omaha to Cheyenne.

Of the mineral resources of Wyoming Territory the editor of the Cheyenne Leader furnishes me the following information.

#### Minerals.

The mineral development of Wyoming may be justly said to be in its infancy. Nearly all the useful minerals and the precious metals are found in greater or less profusion. Gold, silver, copper, quicksilver, lead, iron, coal, oil, gypsum and asphaltum abound in many places. The gold mines of Sweetwater district, and those of the Medicine Bow Mountains and of the Big Horn Mountains are in reality just beginning to yield up their wealth. But the greatest mineral interest is found in the coal and iron deposits. These are of an extent and magnitude surpassing any other similar known area on the globe.

#### The Coal Measures of Wyoming

Over a space of nearly 100,000 square miles, extending along the line of the railroad for a distance of some 300 miles. From the location and the excellent quality of coal they contain, these fields possess a prospective importance only second to that of the great anthracite deposits of central Pennsylvania. The coal is a better article, ton to ton, than Lehigh coal for making steam, for domestic use, for locomotives and for gas manufacture, because it has less waste, ash and cinder, and burns more freely, with less trouble in kindling. It has been tried by the Union Pacific company in their cupolas at Omaha for smelting cast iron, and found to answer the purpose better than anthracite, adding to the fineness of grain and the toughness of the iron.

Passing the night and the next day in the cars we find ourselves at Ogden and from here we will make a trip to the famous mines of Utah. W. H. M.

#### Mining Hoisting Works.

Eds. PRESS:—I notice a plan of hoisting and pumping works for mines in your issue of Aug 12th. Mr. Phillips speaks of increased expense in proportion to depth which is of course true. I will give you the particulars of the workings of the double cages at the Yellow Jacket mine, which may be interesting to the mining public. They have been in constant use now for over three months. The upper cage is seven feet high and, with eccentric safety, weighs 1,300 pounds; the lower one being six feet high and weighs 450 lbs. The foreman and miners

say that the cages run much steadier than when single ones were used.

Now as to economy. With the single cage they averaged, from the 1,100-foot level and return, a trip every four minutes, or fifteen trips an hour; each draft bringing 1,500 pounds of ore or waste—allowing half a minute, (which it does not require) on the 1,100-foot level and the surface, for changing additional car, we will say five minutes for each trip; same as made before in four minutes, or twelve trips an hour. Each draft bringing 2,800 pounds to the surface, showing an increase of work done by one rope, as follows:—By single cage, 10½ tons per hour, and by new ones 16 tons, or an increase of about 120 tons in 20 hours, or 240 tons increase of hoisting capacity with the two double cages.

Formerly they started from the bottom of the shaft with 6,000 pounds of rope and 1,300 of cage to raise 1,400 pounds of ore; now, with an additional weight of 450 pounds of lower cage, they raise 2,800 weight of ore, which, as can easily be seen, is a great saving. Another economy is, that as the cages make many trips with only a man or two, now, if timber is to go down, or any men to come up, an empty or a loaded car as the case may be, is always on the lower cage. The double cages carry from 18 to 20 men at a trip whereas the single ones carried only 9 or 10. The "Yellow Jacket" company are about to hoist ore for the "Belcher" mine, and it would be supposed that it could not be done without a sacrifice of their own work.

The forsmen, Mr. Donnelly, assures me that they can hoist for the Belcher 200 or 300 tons per day, if required, without delaying their own work. With single cages this could not be done. Since the introduction of double ones, the consumption of wood has been reduced over three cords per day. One of the double cages was run, to ascertain its capacity, as fast as possible, and in 80 minutes 68 loads of 1,400 pounds each were raised from the 1,000-foot level, that is 34 trips of 2,800 pounds at each draft in all over 47 tons in 80 minutes.

Chairs are used on the levels for changing the upper and lower cars, the same as are used on the surface at mouth of shaft. By an ingenious application the lower cage passes through and allows the upper one to be changed first. The steel wire ropes used are one-half inch by five.

DEEP MINER.

THE BEAN VINE AND THE SUN.—On this side of the equator, all bean vines at all times twine the same way. Why? It has been a question whether the sun has anything to do with the matter. To settle this question, Prof. J. Parish Stelle wrote to a friend residing in Brazil, just below the Tropic of Capricorn, asking him how the bean winds there. His friend replied that it goes round the pole in precisely the reverse direction from that taken in the United States. How does the bean manage directly under the equator? Can anyone tell?—*Rural Carolinian*.

FOR TRAVELERS.—An instrument has been invented that marks "the ebb of time," showing how many minutes there are prior to any event. If placed in the post-office it reads: "Mails open in thirty minutes;" one minute later it reads, "in twenty-nine minutes;" then in twenty-eight, and so on. At a railway it reads:—"This train leaves in ten minutes," then in eight and etc., and when the index reaches 0, the train starts. Thus any passenger on entering a station knows just how much time he has for getting tickets, checks, a newspaper, and a seat, without consulting a watch or a clock to ascertain the hour of day.

THE MERCED COTTON EXPERIMENT A SUCCESS.—We have received a note from Col. J. M. Strong assuring us that his Cotton Crop at Snelling, on the Merced river is now sufficiently advanced to assure success. He says:—"I regard it as no longer an experiment. The present crop will yield far above the average crops of the South."

THE LAKE TAHOE WATER WORKS.—Col. Von Schmidt will commence work on the Lake Tahoe Water Works tunnel immediately with forty men at each end. Three hundred men will be set to work as soon as practicable.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**Monitor Miner.**—Aug. 12th: The Globe Co. have their chamber for shaft completed, and will commence sinking on the copper vein Monday next. The shaft will be sunk to an indefinite depth, and stopes run at convenient distances for the extraction of the ore. Two shifts will continue boring the main tunnel to tap the main deposit.

The Monitor & Northwestern Co. have commenced grading for their ore house. Its dimensions are to be 20x40 feet and it will be built in a substantial manner.

Next week the shaft connecting the M. & N. W. and Silver Gance mines will be completed, when the work of stoping out ore will be commenced.

### BUTTE COUNTY.

**THE HENDRICKS' DITCH.**—Chico *Enterprise*, Aug. 19th: Although designed by the Co. to facilitate the successful working of their large mining interests at Morris Ravine, the vast dimensions of their ditch, will furnish a sufficient supply to develop the finest gravel deposits of the country, which extend all along the line of the ditch, from its source to its terminus. Tests on points through which this ditch will take its way, have demonstrated the existence of rich mineral deposits, which, for the want of water, have for years laid unemployed. The ditch commences on the main West Branch of Feather river, at a point known as Meacham's Dam, distant 35 miles from Morris' Ravine, where is situated the fine mining property of the Co. constructing it.

### CALAVERAS COUNTY.

**RAILROAD FLAT.**—Calaveras *Chronicle*, Aug. 19th: At the Prussian Hill mine first class rock is being taken out. The Fifield M. Co. are busily engaged running levels and "stoping out" rock. Anderson & Co. are engaged in running a tunnel to intersect their lode. Darnell, Ayer & Co. have struck the lode after running a tunnel some 250 ft. This tunnel taps the vein at a depth of 120 ft. below the surface.

### FRESNO COUNTY.

**RIVER MINING.**—Millerton *Expositor*, Aug. 16th: The water in the river being low, the miners are making preparations for turning it, to open their claims in its bed. More activity in river mining is anticipated this season than usual.

### INYO COUNTY.

**ECLIPSE.**—Inyo *Independent*, Aug. 12th: The new mill of the Eclipse Co. is complete and ready for operating with 30 stamps, except that the new turbine wheel has not yet arrived.

**KEARSAGE.**—Thursday several new pans were put in operation, making a total of 14, all of which are kept steadily in motion.

**THE JULIA DEANE.**—The tunnel being run for this mine (Deep Spring Valley,) is now in 182 ft., but no ledge yet.

### LOS ANGELES COUNTY.

**NEW GOLD MINE.**—Los Angeles *News*, Aug. 12th: A very rich vein of gold bearing quartz has been discovered in the vicinity of Fort Tejon by J. R. Treadwell. The ledge is eight feet wide, work has been commenced upon it, three arastras having been set up. A mill is to be erected at an early day.

**FROM BRADSHAW.**—Same paper Aug. 19th: Two wagon loads of gold bearing quartz of the finest quality were received, yesterday, from the Bradshaw dist. for shipment to S. F.

**CLARK DISTRICT MINES.**—A working test of averaged rock taken from the Winnemucca mine, and worked by Lockhardt process gave \$872 per ton. A ton of assorted rock taken from the same mine yielded \$2,872 per ton. A working test of rock from the Eugenia mine gave \$9.50 per ton. Another 300 pounds of average rock worked by arastras gave 35 oz. of silver. There are 35 men at work on the mine taking out rock and preparing arastras.

**NINE COMPANIES** are at work in the district, working in the aggregate about 100 men, two arastras are in successful operation, and a number in course of construction.

### MARIPOSA COUNTY.

**MINE SOLD.**—Mariposa *Gazette*, Aug. 18th: The Francis mine, about 15 miles from this place on the Mariposa creek, has been sold to parties in Horinitos. Some of the rock from this mine assays over \$300 per ton. The reported price to be paid is \$1,100.

### MONO COUNTY.

**READY FOR OPERATION.**—Inyo *Independent*, Aug. 12th: The new ten-stamp mill, in course of construction by Messrs. Greeley, at Benton is about ready to steam up.

### NEVADA COUNTY.

**MINING LOCATIONS.**—Nevada *Gazette*, Aug. 19th: John Grannan and others have located 1,600 ft., the first Northern Extension of the Seven Thirty Loan Co.'s, in Dead Man's Flat, Nevada Co. John Jeffree and others have located ten claims of 100 feet each on the Quartz Ledge known as the Mobile Quartz Ledge, in Grass Valley Township.

**NEW YORK HILL MINE.**—Grass Valley *Union*, Aug. 16th: This mine is one of the re-opened old mines of the dist. It is now in working order, and good ore is coming out, which shows splendidly in sulphurets.

**ALTONA MINES.**—Yesterday 600 shares of stock in two lots were sold. One lot of 200 shares sold at \$5 per share, and the other 400 shares at \$4.

### PLACER COUNTY.

**JUNCTION DIVIDE.**—Auburn *Herald*, Aug. 19:—A company of Sacramentians have located and recorded a mining claim at the Junction of the North and Middle forks of the American river. The locators are T. P. Ford & Co. The capital stock is \$90,000, in 1,800 shares of \$50 each.

### SIERRA COUNTY.

**QUITE A CHUNK.**—Downville *Messenger*, Aug. 19: Some men working a claim on St. Charles Hill, at the head of Fiddle creek, near Brumwell's ranch, between Brandy City and Eureka, recently found a piece of quartz and gold, weighing 64 lbs. The gold has been stopped in S. F. to await developments.

**PRIMROSE.**—The workmen in the Primrose mine, Hog Cañon, have completed the work of raising the shaft and will commence crushing rock next week.

**SHAFT BROKEN.**—The shaft of the main wheel at Kanaka mill, recently gave way.

### SISKIYOU COUNTY.

**THE FLUMING ENTERPRISE.**—Yreka *Union*, Aug. 19: We are sorry that obstacles have arisen to the project for the fluming of Yreka Creek, which may prevent the enterprise being undertaken. Many old claims which were believed to have been abandoned, have been revived again. The claimants demand to be bought out at high figures or threaten to interfere with the work if they are not. If parties have valid rights, they must be respected, but it is to be hoped they will show a disposition to compromise on liberal terms. And where parties are trumping up claims, they should meet with the contempt and execration which their baseness deserves.

### TUOLUMNE COUNTY.

**MINING DITCH AT LAGRANGE.**—Stockton *Independent*, Aug. 19: The water to supply this ditch is taken from the Tuolumne river at Indian Bar, high enough to wash the highest gravel hills in the vicinity of Lagrange. Four hundred men are now constantly at work on this enterprise, which will be completed by Jan. 1872.

## Nevada.

### COPE DISTRICT.

**BULL RUN DISTRICT.**—Elko *Independent*, Aug. 19th: Mr. Hartwell, operating for English capitalists, has purchased two of Governor Chellis' mines, the Monument and Found Treasure, for \$32,000. Mr. Hartwell will put a mill into Bull Run and have it in running order by the first of next January. The Silver Belt and Revenue mines are looking finely. The Revenue Co. has 40 tons of chloride ore on its dump, that will work \$100 a ton by wet process. The Revenue has a splendid ledge six feet in width. The Blue Jacket Co. is working four men and taking out splendid ore. The Buster mine, owned by McDonald & Bowman, is looking well. The Excelsior Co. has struck another rich chimney north of the old works on that ledge.

Harris and Loveridge continue to take the richest of ore from the Independent mine. They are running levels, etc., at a depth of 120 feet.

Hays, Niver & Co. are running levels on the El Dorado at a depth of 75 ft. This ledge is fully five feet wide and very rich.

The boys on the Ku-Klux are now down 50 ft. on their ledge, which is four feet wide, and have \$250 milling ore.

The Monitor is being worked from its 60-foot level.

The Kanahwa consists of sulphuret and chloride of silver, with a trace of quartz. The proprietors have about 30 tons of rich mineral now out.

The Norton mill is idle just now, wait-

ing for shoes and other castings.

The Davis mill is constantly employed on high grade ores, guaranteeing 80 per cent. on pulp assay, and charging \$30 a ton for working, roasting, &c.

**CLOVER VALLEY.**—V. B. Latham, Wiseman Brothers, Thomas Kane and Nick Schore, joint owners in the Latham ledge in Spruce Mountain, have sold the ledge to Crawford & Co., of Philadelphia, for \$30,000 coin. Crawford has gone to work as if the mine was business, furnace, machinery, etc., being ordered and en route to the district.

J. G. McIlheeny, of Clover Valley, sold his interest in the Agate ledge in Kane district to a Dubuque, Iowa, firm for \$1,500.

**RAILROAD DISTRICT.**—Ore is being shipped to Palisade from the Lec mine.

The Brosmer or Elko tunnel is working in a six foot vein. Mr. Hussey will set 20 men to work at once, and more as soon as they can be worked to advantage.

The cry is laborers, laborers. There is room for a large number of good miners. The Wormer mine is looking well. Its owners feel much encouraged.

The smelter failed to work on account of the great disparity in the size of blower and the engine. Adam Haag has ordered a new engine and boiler, which is expected daily.

Stiles & Banning took to Elko the third load of the Roulstone copper ore from the Emma mine. Roulstone has bought a hundred tons to be shipped to San Francisco.

Mr. Carter says the Lee mine has as perfect wall rocks as he has ever seen.

The Elko tunnel is now 145 ft. in length and still progressing.

### EUREKA DISTRICT.

**BULLION SHIPMENT.**—Austlin *Reveille* Aug. 18th: The Manhattan Co. have ready for shipment 22 bars of bullion weighing 2,200 pounds of the aggregate value of about \$28,000. They have also on hand about ten bars more, in crude bullion and amalgam ready for the retort. All this is from the working of the mill from the 5th until the 15th inst., less than two weeks.

**HEAVY SALE OF MINES.**—Euroka *Sentinel* Aug. 16th: It is said that John C. Fall, of Unionville, has sold his interests at that place for \$1,000,000.

**WIDE WEST MINE** is now being worked by a small force of men. The ore is looking finely.

**NEW PHENIX FURNACE.**—The flushing of this furnace will be complete in a few days. It will be started as soon as the Supt. arrives.

**CONSOLIDATED.**—For the 24 hours ending yesterday, the Consolidated furnaces turned out 18 tons of bullion, which assayed \$455 to the ton of metal. No. 4 furnace has been running for 11 weeks without repair. No. 5 has been running nine weeks and is to all appearance as perfect as when the fire was applied to it.

**RICHMOND FURNACE.**—This furnace was closed for three days for the purpose of relining it. The Pancake stone was ready and was put in as soon as the furnace was cool enough. The bullion is leaving the furnace as usual, and the Richmond bullion is quite as rich as any that has ever been made in Eureka.

### ELY DISTRICT.

**BULLION SHIPPED.**—Ely *Record*, Aug. 17th: Wells, Fargo & Co. shipped since our last issue, 22 bars valued at \$30,758.96 and for 3 days ending Aug. 13. 19 bars valued at \$32,467.37.

Assays of six bars of bullion from the Raymond & Ely Co.'s mines gave \$26,485.05.

**GOLD DISCOVERY.**—On Thursday last no little stir was created in Pioche by the discovery of gold in an old location south of Gleason's Boarding House. The shaft is about 10 feet deep, exposing a narrow seam of red decomposed quartz, which will assay in gold over \$50,000 to the ton. Mr. Egan, Supt., of Meadow Valley Extension Co., washed out over \$5,000 in pure gold from two handfuls of dirt. The discovery was made by a Mr. Parker. Several tons of this ore can be obtained to a certainty.

**LOOKING UP.**—The mines located at the upper end of Main street at present looking up. Russell Scott, Charley Noakes and others, owners of the Justice, are putting down a shaft 4x8 feet, and expect to strike the ledge at a depth of about 100 feet.

They are now sinking day and night in order to tap the vein which is doubtless rich. Many shafts are being put down in the immediate vicinity and all give promise of success.

**THE MARY**, owned by J. J. and M. D. Halpin and C. Felsenthal located for silver proves to be a gold mine as well. The vein is about 2½ feet.

### HUMBOLDT.

**RICH STRIKE.**—Unionville, *Silver State*,

Aug. 19th: A rich strike is reported in the Agammemnon. The ledge is 3 ft. wide and rich beyond expectation, two men are at work extracting ore, and a pile of several tons, all "pay rock," is now on the dump awaiting transportation for reduction. The Agammemnon is encased in quartzite and conglomerate rocks, and although it crosses the hill in which the Arizona is located but a short distance (about 1,200 feet) from the outcroppings of that mine, no limestone is visible on the surface along its course, which is already defined, though the conglomerate which forms the northeast wall and extends in to the country an indefinite distance in that direction, is evidently a sedimentary formation.

**BUENA VISTA DIST.**—A shaft was sunk on the Eclipse 80 feet deep, some months since, disclosing a ledge three feet in width, with a rich pay streak next to the foot-wall, of 24 inches. A large body of water being encountered in the shaft, it was abandoned. A tunnel was then started in several hundred feet lower down the hill, and will in 25 ft. more, reach the main body of ore 300 feet below the surface.

**ARIZONA CONSOLIDATED.**—Ore of a high grade is being extracted. Forty tons a day is about the average yield. The company's mills are steadily employed on ore from their own mine.

**HENNING.**—This Co. have run a drift 70 feet, following the ledge, which is seven feet wide, and shows a very good quality of ore.

**INSKEEP.**—The ledge is now about seven feet wide.

**STAR DISTRICT.**—The De Soto is looking as well as ever. There is a well authenticated rumor that negotiations are pending for the sale of the De Soto mine to the Nevada L. & M. Co., Reno.

**MILLER'S GOLD MINE.**—Mr. M. still continues the working of his gold mine in Star creek.

**SHEPA.**—Hands are engaged in extracting ore. The mine shows a well developed vein, of high grade ore. The first-class ore is sacked and shipped, while the second-class is laid to one side for milling purposes.

**BURNED.**—Aug. 21st: The Butte mill and smelting works, at Rye Patch, were entirely consumed with a large quantity of wood, yesterday evening, loss \$40,000. Insured.

### WASHOE.

**BULLION SHIPPED.**—Virginia *Enterprise*, Aug. 13th: The Bank of California, in this city, day before yesterday, shipped \$22,000, and yesterday \$14,000,—total, \$36,000—in silver bars. The bars were from the Savage, Crown Point and Yellow Jacket mines.

**BULLION RECEIVED.**—Aug. 17th: By the Bank of California, \$62,000 in silver bricks from the Crown Point, Yellow Jacket and Savage mines. Day before \$12,000.

**ORE YIELD.**—The Savage mine yielded 500 tons of ore last week, assaying \$28.21 per ton. Hale and Norcross 80 tons, the mine not being in condition just now for extensive ore extraction.

**LADY BRYAN.**—The Co. have taken out and sacked a considerable quantity of ore which they intend having worked by the Stetefeldt process at the Auburn mill, Reno. We were yesterday shown a couple of assays from the grades of ore. They were as follows: No. 1, \$2,457.56; No. 2, \$843.01. A car sample of the ore now coming out of the mine, assayed yesterday, yielded at the rate of \$260.25 in gold and silver. The dump is now full of ore, and the mill will start up again in a few days.

**THE Woodville** lead is now being successfully worked on Gold Cañon, between Devil's Gate and Lower Gold Hill. A tunnel has been run in upon the lead from the bed of the cañon a distance of 167 ft. the ore taken out in running the tunnel has yielded \$400 above all expenses. The vein is from two to five feet in width, and is what is called gold-bearing, the per cent. of silver in the ore being small. The average yield of the ore thus far has been \$25 per ton.

**BUCKEYE.**—The small pumps at this mine are running for the purpose of raising water for mills in the vicinity, but they do not much decrease the water in the incline. Some prospecting is being done in the upper works. The machinery is now being put in order and will soon be set up.

**ORE.**—Gold Hill *News*, Aug. 15th: A good body of ore is reported to have been found in the Savage mine, at the 3d level from the new shaft, also two or three pretty good deposits in the old upper workings. The mine is yielding 150 tons per day at present.

**THE JULIA.**—This mine is about to be reopened and properly worked. It lies just



cast of the Comstock, and oposito the Chollar-Potosi mine.

**OCCIDENTAL.**—This mine is to be worked again under its own proprietorship.

**DISCOVERY.**—Mr. Phelps, of Silver City, yesterday showed us two assays from a lead just discovered by him a short distance below that town. The average was \$105.87, from ore dug upon the surface.

**SUTRO TUNNEL** was yesterday in a distance of 2,332 feet. The ground is working well, and no water is coming in at the face of the tunnel.

**WHITE PINE.**

**BULLION FORWARDED.**—White Pine News, Aug. 12th: Wells, Fargo & Co., shipped today to New York, 2 bars of bullion weighing—lbs., valued at \$2,411.00—the product of the Ward Beecher Consolidated mine.

The shipments of bullion for the present week foot up 2,776 pounds, valued at \$18,241.30.

**WARD BEECHER.**—The strike on the south line of this mine has proved itself to be rich and extensive. The connection between the main shaft and the Earl chamber is completed. The surface dumps still remain crowded with ore, which is shipped daily, by team, to the Oasis, Stanford, and international mills. Working 90 men.

**SOUTH AURORA.**—A large amount of ore is piled at the tramway loading station of this mine. Working 30 men.

**EBERHARDT.**—There is a large amount of low-grade ore on hand, but not being shipped. Will ship ore again as soon as the tramway is running. Working 30 men.

**SOUTH AURORA.**—Prospecting and development are being vigorously pushed, and the mine put in good working shape. Working 90 men.

**OUTSIDE DISTRICTS.**—SCHELL CREEK.—During the present week ore has been brought in to the Big Smoky mill from the McMahon and Needham mines. The ore from the former worked \$305.24, and that from the latter \$188.14 per ton.

**PATTERSON.**—A lot of ore from the Rob Roy, gave an average pass assay of \$195.56 per ton.

**PINTO.**—The English company is prosecuting work on the mill and the Stetefeldt furnace with great vigor, and, barring accidents, will have everything in working order before the snow flies.

**TEM PIUTE.**—Dave Hunt has just returned from this District, and speaks highly of its prospects. He has a force of men at work, opening the Kinsey and Rattler mines, and has made arrangements for conducting the water to the mill-site of the company.

**PIERMONT.**—During the present week a lot of bullion was brought in by Mr. Tregloan. The Piermont company has been delayed in its operations by a scarcity of miners; but this deficiency is now supplied; the mines and mills of this Co. will work regularly in the future.

**THE MONTE CNERIO** machinery is nearly all set, and the mill will be finished and ready to commence crushing ore next week. The company will commence work on its mines—11 in number—as soon as the mill starts, and expect to take out ore enough to keep the mill running steadily.

**Arizona.**

**YAVAPAI COUNTY.**—Prescott *Miner*, Aug. 5: The foreman of the original Tiger Co. states that he has over 20 tons of ore, ready for shipment to S. F. which would pay at the rate of \$1,000 to the ton. We have seen 20 pounds of this ore, and pronounce it the richest silver rock ever seen by us. Some of the pieces show wire silver in abundance, and the clusters thereof are exceedingly beautiful. The specimens are heavily freighted with black and "diamond" sulphurets. In the mine, too, is an 18-inch stratum of silver and copper glance, some of which was recently assayed, yielding per ton in silver \$1,044, and \$30 in gold.

The Lorena, Cougar and other Bradshaw ledges are still contributing considerable ore, containing free silver, horn silver, etc.

Rock was brought to town this week, from a newly-discovered ledge, in the vicinity of the Quartz Mt. saw-mill, which is said to be well charged with horn silver. A rush was made for the mine, and many locations have been made upon it.

The silver ledge recently discovered within a mile or so of Prescott is being opened and promises fairly.

At Black Cañon, the Mexicans are preparing to construct arastras to work ore from the Angustin and Sonora lodes.

In Weaver district the owners of the Columbia are working away.

The Vulture Co.'s mill at Vulture City, is working. Every ton of ore crushed for

some time past, and has paid upwards of \$90.

**SUMO** paper Aug. 12:—Poland & Co., are developing the Espinosa lode.

A. B. Smith & Co. are taking very rich gold ore out of the Moreland.

The rock from the Great Sexton lode, Weaver district, recently worked at the Vulture mill, gave good satisfaction.

**Idaho.**

**SASKATCHEWAN MINES.**—Silver City *Aratanche*, Aug. 12th: Mr. Pambrum, who wintered in the Saskatchewan, reports only a few miners there. They take out \$10 to \$15 per day, but provisions are almost impossible to be obtained.

**WARREN'S DIGGINGS.**—Idaho *Statesman*, Aug. 12th: A great many men are finding their way to that camp, and the prospects for it to turn out a good mining country are daily increasing.

**BASIN ITEMS.**—The Gold Hill mill made a big clean-up last Sunday, after a month's run. John Good, in working his placer mines in the gulch above the Gold Hill mill, discovered, a few days ago, a well-defined ledge, the ore from which is said to prospect well. Mr. Eissler has a force of men engaged in taking out ore from his lodge at Gold Hill, and T. S. Hart is pushing forward work on his mill at the Lawyer.

**ITEMS.**—Silver City *Aratanche*, Aug. 12: Last Tuesday a four-foot ledge was struck at the bottom of the 7th level, south of the shaft in the Chariot, said to be rich. The Mahogany is yielding a splendid quality of ore. The new wire hoisting rope for the South Chariot has arrived. A contract was lot this week to sink the main shaft 100 feet deeper, at \$17.80 per foot. There are now between 30 and 40 men at work in the Oro Fino which is yielding good looking ore. Vein from 4 to 7 ft. wide. The Ida Elmore Co. have elected a new Board of Trustees who, it is said, will immediately resume operations on the mine. Arrangements have been made to incorporate the Skookum which is one of the best mines in Camp.

The south shaft of the Idlewild is down 38 ft. The pay streak is only some two or three inches in width, but is exceedingly rich in gold.

The Empire looks better than ever. The parties at work on the Morning Star got the water out of the mine last Monday and are ready to take out ore.

Splendid looking ore continues to be taken from the Noonday.

Sands & Co. will resume operations on the Illinois Central before long.

W. B. Knott is working his mine on Florida mountain and has from 25 to 30 tons of ore ready for crushing. It is very rich in gold, and good judges estimate that it will yield from \$200 to \$250 per ton.

**Montana.**

**PILGRIM BAR.**—Deer Lodge *Independent*, Aug. 11th: The Rock Creek Ditch is running 1,700 inches of water, 17 hydraulics are running on the Bar and in its immediate vicinity, nearly all of which are paying well. Joe Steele & Co.; Hagan, Timberlake & Co.; Holcomb & Deery; Roe & Bell and Brelsford & Co., have been taking out regularly from \$1,000 to \$3,000, per week. Clayborn, Smith & Co., have one of the best claims on the Bar. John Rogers & Co., have just reached good pay in their claim on Gold Hill, and John Thomas & Co., have just commenced work on good ground near the same locality. Nathan Smith & Co., have lately commenced operations on some of the best ground on the bar.

**NEW GOLD DISCOVERY.**—Kelcher and Dick, have just started out to develop a newly-discovered quartz lead in the mountains immediately west of James Buckley's house, Bitter Root Valley. This lead was staked by somebody in 1867, but was never sufficiently explored to determine anything concerning its richness.

**DITCH SALE.**—Deer Lodge *New North West*, Aug. 12th: Mr. R. C. Allen came down from Silver Bow yesterday bringing "good news from Ghent." Mr. Allen sold, and on Monday gave possession of, his one-half interest in the Bellanger & Allen Ditch to Jacob Herman of Butte for \$6,000 cash.

**Utah.**

**TREASURE SHIPPED.**—Salt Lake *Review*, Aug. 16: Wells, Fargo & Co., shipped yesterday 5 bars, \$57 lbs., valued at \$16,390.64, owned by T. & E. M. Co. Also 14 bars, 1219 lbs., valued at \$16,076.48.

**BIG COTTONWOOD.**—Another smelter is being erected, and prospects were never better for a permanent and profitable mining camp than at Belleville or Silver Springs.

**Mining Stock Market.**

THURSDAY EVE., AUG. 24, 1871.

We report an increased amount of business in the Board during the past week, mainly due to a remarkable activity in Yellow Jacket, of which over 13,000 shares changed hands at an approximate valuation of \$845,000. A large number of what are called outside stocks participated to a large extent, under advancing rates, but toward the close less firmness prevailed with an inclination to lower figures. The general tone of the market is healthful, and these remarks are particularly applicable to the Comstock claims, the whole range presenting favorable features for a large future production of argentiferous ores.

The sales in the San Francisco Stock Board, from August 17th to the 23d, inclusive, have been as follows:

70 shares Alpha at \$20.00	50.
10 shares Beta at \$25.00	25.
1043 shares Belcher at \$22.25	217.
650 shares Buckley at \$1.75	25.
6869 shares Chollar-Potosi at \$30.00	32 3/4.
840 shares Columbia at \$16.00	22.
445 shares Crown Point at \$20.00	50.
696 shares Eureka at \$10.00	50.
730 shares Eureka Consolidated at \$10.00	25.
710 shares Gould & Curry at \$10.00	104.
200 shares Golden Chariot at \$24.00	50.
706 shares Imperial at \$20.00	40.
720 shares L. & N. at \$25.00	25.
440 shares Kentucky at \$11.00	135.
600 shares Lady Bryan at \$3.00	25.
6863 shares Mahogany at \$13.15	25.
370 shares Nevada Consolidated at \$20.00	50.
300 shares Monitor and Magnet at \$7.75	30.
1413 shares Ophir at \$10.00	75.
2182 shares Ophir at \$10.00	75.
565 shares Overman at \$6.00	50.
2510 shares Picoche at \$13.15	125.
5775 shares Phoenix at \$1.25	25.
240 shares Pioneer Valley at \$21.00	50.
3585 shares Raymond & Ely at \$18.75	75.
170 shares Sogroated Belcher at \$5.00	75.
2700 shares Succor at \$10.00	50.
2280 shares Sutter at \$25.00	25.
13,213 shares Yellow Jacket at \$41.50	66.
200 shares Yale at \$11.00	25.
351 shares Hale & Norcross at \$30.00	25.
100 shares St. Patrick at \$3.00	25.
1220 shares Crown Point South at \$5.00	25.
310 shares Noonday at \$5.00	25.
400 shares Ophir at \$10.00	25.
6 shares Daney at \$5.00	25.
100 shares Marble Falls at \$5.00	25.
1000 shares Julia at \$5.00	25.
300 shares Main at \$5.00	25.
6 shares Spring Valley Water Co. at \$75.00	25.
200 shares Front-street and O. Railroad Co. at \$18.75	19.
Amount of sales.....	\$2,739,222.

**MEADOW VALLEY** (Pioche, Nevada)—sold to a considerable extent at well maintained prices. From the annual report of the Secretary for the two years ending July 31st, 1871, we take the following statement:

From Bullion.....	\$1,671,465
Assessments.....	210,000
Other receipts.....	95,361
Unliquidated liabilities.....	95,361
Total.....	\$1,981,042

Dividends.....	\$330,000
Mine properties.....	289,558
Mining account.....	474,738
Milling account.....	357,336
Construction account at mine.....	44,804
Construction account at mill.....	214,065
Miscellaneous.....	98,176
Unliquidated liabilities.....	192,392
Total.....	\$1,981,042

Amount of ore extracted, 17,458 tons; reduced, 16,171 tons. The cost of production was as follows: Extracting, \$14 20; prospecting, improvements, etc., \$10 30; reduction, \$19 60—total cost, \$44 11, while the average yield amounted to \$105 34 per ton. The permanent investments of the company aggregate \$548,428, while other resources foot up \$240,600. Liabilities, \$95,360.

**CHOLLAR-POTOSI**—has been quite active, under a slight improvement. For the week ending August 19th, 903 tons of ore were extracted, showing an average yield of \$44 20 per ton.

**HALE & NORCROSS** is quiet. They took out 311 1/2 tons of ore for the week closing August 19th. An assessment of \$10 per share was levied on the 21st inst. **Savage** shows a yield of 850 tons of ore for the week ending August 20th. **Belcher** was less active at a decline from last week. A letter of the 20th says: The ore in the incline is improving as we sink. The top stratum of pay ore continues about the same, showing \$207 per ton. We have a stratum of very good pay ore coming in on the bottom of incline. **Crown Point** continues quiet at a recession. During the week ending August 19th, 1,192 1/2 tons of ore were extracted, showing an estimated value of \$43,567. **Empire** levied an assessment of \$12 per share on the 23d inst.

**MINING STOCK QUOTATIONS, AUGUST 24, 1871.**

CALIFORNIA.		WASHINGTON.	
Bid.	Asked.	Bid.	Asked.
Amador.....	\$2 1/2	Haile & Norcross.....	\$8 1/2
Eureka.....	15 1/2	Imperial.....	4 1/2
		Julia.....	25
		Kentuck.....	146
		Overman.....	20 1/2
		Sage.....	40 1/2
		Silver.....	12 1/2
		Succor.....	6 1/2
		Yellow Jacket.....	7 1/2
		Gould & Curry.....	104

WHITE PINE.		IDAHO.	
Bid.	Asked.	Bid.	Asked.
Chollar-Potosi.....	30	Mahogany.....	12 1/2
Golden Ore.....	25		
Monday.....	40		
Orig. Hidden Tr. 8	8 1/2		

FLY DISTRICT.		TUBERCLE DISTRICT.	
Bid.	Asked.	Bid.	Asked.
Golden Ore.....	25	Raymond & Ely.....	20 1/2
Ida Elmore.....	4 1/2		
		Phoenix.....	2 1/2

**Mining Shareholders' Directory—Meetings, Assessments and Dividends.**

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS			
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY	DAY.
Buckeye, Lyon Co., Nev., July 1, \$1.00.	Aug. 23—Sept. 5		
Cheerokee Flat B. G. Co., Aug. 12, \$2.50.	Sept. 13—Sept. 29		
Columbus M. & M. Co., Aug. 8, \$1.00.	Sept. 12—Sept. 30		
Cons. Vir. Storey Co., Nev., Aug. 1, \$1.50.	Sept. 6—Sept. 26		
Hale & Norcross, Va. City, Aug. 21, \$10.	Sept. 23—Oct. 13		
Leadville, M. & M. Co., Nev., July 13, \$10.	Sept. 1—Sept. 11		
Jeusens Lubricator Co., Aug. 1, \$1.00.	Sept. 7—Sept. 20		
Kincaid Flat M. Co., Tu. Co., Aug. 4, \$2.	Sept. 11—Oct. 2		
Lucerne M. Co., Nev., Aug. 17, \$3.	Sept. 11—Oct. 2		
Mahogany, Owyhee Co., I. T., Jan. 22 \$2.	Aug. 10—Aug. 28		
Mammoth, White Pine, Aug. 16, 10c.	Sept. 19—Oct. 9		
Marble Falls, Nyo Co., Nev., Jul. 12, 60c.	Aug. 19—Sept. 15		
Meadow Valley Ex. July 5, \$1.	Aug. 14—Sept. 11		
Miner's M. Co., Placer, Aug. 8, 20c.	Sept. 1—Oct. 3		
North American Con. M. Co., Ji. 31, 20c.	Sept. 6—Sept. 30		
Nevada Butte, Battle Mt., Nev. Jul. 16, \$1.	Aug. 22—Sept. 16		
Nevada Land & Min. Co. July 26, 4c.	Aug. 29—Sept. 20		
Noonday, White Pine, July 13, 20c.	Aug. 21—Sept. 18		
Ophir, Va. City, July 12, \$5.	Aug. 16—Sept. 8		
O. H. Treasure, July 6, \$2.	Sept. 7—Sept. 27		
Ophir C. S. & G. M. Co., Aug. 2, 75c.	Sept. 4—Sept. 20		
Overman, G. H., July 26, \$2.	Aug. 31—Sept. 13		
Phenix, Lander Co., Nev., July 24, 60c.	Aug. 23—Sept. 19		
Quail Hill M. & W. Co., Aug. 16, \$20.	Sept. 2—Oct. 16		
Seg. Belcher, G. H., July 20, \$5.	Aug. 23—Sept. 12		
Shipley, Placer Co., Aug. 2, \$2.	Sept. 6—Sept. 27		
St. Louis M. Co., Nev., Aug. 17, \$3.	Sept. 20—Oct. 9		
St. Patrick, Ophir Dist., Aug. 16, 5c.	Sept. 30—Sept. 20		
Sumner, Kern Co. June 14, \$5.	Aug. 15—Aug. 30		
Tecumseh G. S. & C. M. Co., Jul. 28, 5c.	Sept. 4—Sept. 28		
Tallulah, Humboldt Co. Nev., July 27, \$1.	Aug. 28—Sept. 20		
Virginia M. & M. Co., W. P., July 25, 25c.	Sept. 2—Sept. 20		

**LATEST DIVIDENDS—(Within Three Months.)**

Chollar-Potosi, \$2.	Payable July 11
Chollar Potosi, \$5.	Payable May 20
Crown Point \$10.	Payable June 10
Eureka (Cal), \$1.	Payable July 7
Eureka (Cal), \$1.	Payable Sept. 21
Meadow Valley.....	Payable July 15
Natoma, div. 1 per cent.	Payable Aug. 5
Overman.....	Annual Meeting, July 13
Redington, 1 per cent.	Payable Aug. 5
Yellow Jacket, \$2 50.	Payable July 10
Yule Grafton, 60 cts.	Payable Aug. 4

\* Advertised in this journal.

**San Francisco Retail Market Rates.**

FRIDAY, August 18, 1871.	
MISCELLANEOUS.	
Butter, Cal. fr. d.	35 @ 45
Pineapple, Cal. fr. d.	35 @ 45
Oregon, fr. d.	25 @ 30
Honey, fr. d.	25 @ 30
Cheese, fr. d.	25 @ 30
Deer Sides, fr. d.	30 @ 35
Lard, fr. d.	18 @ 20
Sugar, cr. 6 1/2 lb.	10 @ 12
Brown, do. 6 lb.	10 @ 12
White, do. 6 lb.	10 @ 12
Sugar, Map. do.	25 @ 30
Plums, dried, lb.	15 @ 20
Peaches, dried, lb.	15 @ 20
PRODUCE, ETC.	
Oodfish, dry, lb.	6 @ 10
Flour, ex. bl. 7 lb.	67 1/2 @ 75
Superfine, do. 5 lb.	60 @ 65
Corn Meal, 10 lb. 3 lb.	63 @ 65
Oats, 100 lb. 1 lb.	62 @ 65
FRUITS, VEGETABLES, ETC.	
Pine Apples, fr. d.	25 @ 30
Bananas, fr. d.	30 @ 35
Cal. Walnuts, fr. d.	25 @ 30
Chestnuts, fr. d.	25 @ 30
Cherries, fr. d.	25 @ 30
Apples, Early, fr. d.	50 @ 60
Red Astrakhan, fr. d.	50 @ 60
Rod June, fr. d.	20 @ 25
Pears, table, fr. d.	25 @ 30
Plums, Cherry, fr. d.	5 @ 10
Apricots, fr. d.	25 @ 30
Apricots, Royal, fr. d.	3 @ 4
Morocco, fr. d.	3 @ 4
White, fr. d.	2 1/2 @ 3
Overman, fr. d.	2 1/2 @ 3
Currants, fr. d.	6 @ 8
Gooseberries, fr. d.	3 @ 4
Blackberries, fr. d.	18 @ 20
Strawberries, fr. d.	8 @ 10
Blackberries, fr. d.	8 @ 10
Oranges, fr. d.	30 @ 35
Lemons, fr. d.	30 @ 35
Wine, fr. d.	25 @ 30
Rice, fr. d.	6 @ 10
Asparagus, fr. d.	6 @ 10
Artichokes, fr. d.	50 @ 60
Brussels sprits, fr. d.	20 @ 25
Beets, fr. d.	20 @ 25
Potatoes, fr. d.	2 @ 3
Potatoes, sweet, fr. d.	4 @ 5
Broccoli, fr. d.	40 @ 50
Cauliflower, fr. d.	1 @ 10
POULTRY, GAME, MEATS, ETC.	
Chickens, apiece 50 @ 75	
Turkeys, fr. d.	20 @ 25
Ducks, wild, fr. d.	15 @ 20
Hams, fr. d.	18 @ 20
Choice D. Field	25 @ 30
Whittaker's.....	25 @ 30
Johnson's.....	25 @ 30
Salmon, fr. d.	8 @ 12 1/2
Smoked, new.....	10 @ 12
Pickled, fr. d.	6 @ 8
Rock Oysters, fr. d.	10 @ 12
Kingfish, fr. d.	10 @ 15
Perch, fr. d.	12 @ 15
Fresh water, fr. d.	12 @ 15
Lake Trout, fr. d.	12 @ 15
Smeets, fr. d.	6 @ 8
Herring, fresh, fr. d.	10 @ 12
Smoked, fr. d.	10 @ 12
Tomcod, fr. d.	15 @ 18 1/2
Terrapin, fr. d.	40 @ 60
Mackerel, fr. d.	10 @ 12
Sea Bass, fr. d.	12 @ 15
Halibut, fr. d.	50 @ 60
Shrimp, fr. d.	4 @ 5
Oysters, fr. d.	100 @ 125
Chesapeake, fr. d.	10 @ 12
Soft Shell, fr. d.	37 @ 50
Shrimps, fr. d.	10 @ 12
Pompano, fr. d.	10 @ 12



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

#### FOR THE WEEK ENDING AUGUST 8TH.

**VARIABLE CUT-OFF FOR STEAM ENGINES.**—William B. Cross, Sacramento, Cal.  
**POULTRY FOUNTAIN.**—John S. Orndorf, Virginia City, Nevada.  
**PADDLE-WHEEL.**—Nathaniel P. Sheldon, San Francisco, Cal.  
**JOURNAL BEARING.**—Sydney P. Cook and Hiram Burt Cook, San Francisco, Cal.  
**MEDICAL COMPOUND FOR TREATING RHEUMATISM, ETC.**—Wm. Curless, Truckee, Cal.  
**DENTAL INSTRUMENT.**—Charles H. Mack, Portland, Oregon.  
**WASHING MACHINE.**—Alfred T. Sullivan, San Jose, Cal.  
**MEDICINAL BEVERAGE.**—Asher S. Taylor, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

#### Dr. Bly's Anatomical Leg.

We insert herewith a sectional elevation of a new artificial leg, which has recently been invented, and introduced to the public at the East by the inventor, and which has more recently been brought to this coast by Mr. Menzo Spring, who has established a manufactory for the same at 101 Jessie street, near the Grand Hotel, in this city.

To obtain an artificial leg, with all the varied motions of the natural one, has been the study of anatomists and mechanics for many years, and the present degree of perfection has been reached only by slow degrees and with the most patient experiment and observation. Bolts and pins were largely employed by the earlier inventors; but the constant wear of such things soon rendered them loose and shackley and next to useless, while at best they were only poor substitutes for the bones, muscles and sinews of nature.

Dr. Bly has endeavored to imitate nature as closely as possible, and to that end starts with a universal joint at the ankle, which approximates as near to nature as art can approach.

Referring to the accompanying illustration, the ankle joint is formed by a ball, *B*, of polished glass, plying in a socket of vulcanite of india rubber, which is a joint that admits of every motion that the natural ankle does, without an exception, and is the first joint ever invented which never requires oiling.

*S* represents three of the four india rubber springs, which take the place of the tendons which pass through the springs with screw-heads on the upper ends. Only three are shown in the figure here, but the lower ends of all four are shown in Fig. 2. *N*, the nuts by which the tension of the tendons and springs are regulated to suit the wearer; and *E*, the spring which operates the knee joint.

The ankle joint is made without iron or any kind of metal, therefore the leg is extremely light—much lighter than any other. The liability of metallic joints to rattle and make a noise, after the leg has been worn a short time, is well known, and the annoyance which it causes the wearer at every step is also well known. Now, as there is no metal about this, there cannot be any noise. The joint is formed by a ball of polished glass, plying in a socket of vulcanite of rubber. (See Fig. 2).

This joint accomplishes the great object which all artificial leg makers have hitherto sought for in vain, viz: it admits of motion in all directions, like the natural ankle joint, and thereby allows the artificial foot to accommodate itself to the varied inequalities of the surface, the same as the natural foot. It often enables those who wear it to walk so well, that it is not even suspected, much less detected. Furthermore, this is a joint which requires no oil, a fact of no little importance, as those will testify who have worn legs with metallic joints, and been obliged to carry pocket oil cans.

In the places corresponding to those occupied by the muscles of the natural leg, are placed india rubber springs with tendons, as shown in our illustration, extending downward in place of the natural tendons; and it is quite interesting to see how well the action of the rubber springs imitate those of the natural muscles. These rubber springs or artificial muscles, together with the ball and socket joint, produce every motion of the natural leg, without an exception.

The power and action of all the springs are regulated simply by turning a nut, so that the wearer may adjust them to suit his own peculiar gait, with great nicety.

Instead of the mechanical motions given a limb by metallic springs, the rubber springs impart easy, uniform motions to the limb, like those of the natural muscles, which give it, when in use, a remarkably life-like appearance.

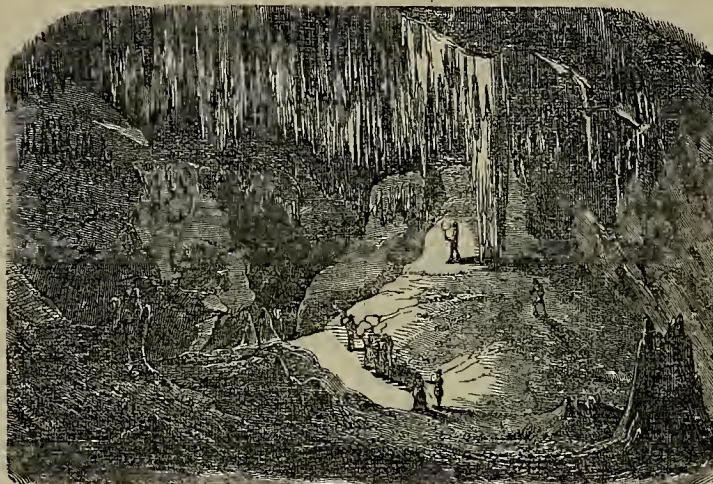
In walking, when the weight of the body rests on the ball of the foot, the spring

The spring, *E*, operates the knee joint, and, assisted by the one just referred to, carries the foot forward at each step, with any degree of motion desired to suit the peculiar gait of the wearer; it being india rubber, and adjustable like the others.

The motion of the knee joint is limited and controlled by the cord, *H*, which takes the place of the crucial ligaments of the natural knee joint; consequently there is no unpleasant or painful jar, caused by the solid parts coming in contact, to limit the motion, as in the old fashioned legs. For further particulars, apply to Mr. Spring, as above.

#### The Wonders of California.

There are but few countries that possess more of the beautiful, unique, picturesque or grand than California. Wherever the traveler goes—in whatever direction—he



VIEW OF THE BRIDAL CHAMBER.

representing the gastrocnemius and soleus muscles is firmly compressed, and when the weight of the body is thrown forward on to the other foot, the spring rises and carries the foot forward to its place, with very little effort of the wearer. By the action of this spring, lifting the foot in a great measure and carrying it forward, the wearer is materially relieved from the

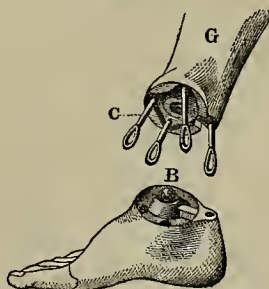
is sure to meet some wonder which is especially Californian in character, and which can rarely be equalled in any other part of the world. Towering mountains, majestic forests, leaping waterfalls, broad valleys, deep and far-reaching caverns, or some other wonderful thing is constantly inviting the traveler to tarry, to look and admire. Among other wonders

"That are but parts of a stupendous whole,"

We may mention prominently the oaves of Calaveras and El Dorado. The former was discovered in 1850 and pre-empted in 1853, by Messrs. Magee & Angell, who erected a hotel near by for the convenience of the numerous visitors which were then flocking thither to inspect this curious work of Nature. This cave is not so remarkable for its dimensions, as for the beauty and unique grandeur of its interior.

The most interesting and striking localities in this cave are known as follows:—A large room near the entrance, called the "Conical Chamber," the walls of which

Fig. II.



greatest burden of artificial legs, viz: weight.

When walking, if one side of the foot happens to be placed on a stone or elevation, or into a hole, the mobility of the ankle joint allows the foot to yield just enough to accommodate itself to the inequality, and thereby prevent straining the stump, or stumbling or falling, which necessarily takes place more or less with all legs which do not admit of lateral and diagonal motion at the ankle joint.

The knee joint is formed by an axial bolt plying in two segments of a circle, one of which is adjustable, to prevent looseness and noise.

are massively solid rather than beautiful. From this the traveler ascends to another large room called the "Cataract," a name which it well deserves from the perfect resemblance to rushing waters which its white depositions of lime present. We come next to the "Cathedral," a large, circular room, covered by a dome-shaped roof sixty feet high. From thence the visitor is shown into the "Bishop's Palace," near the center of which stands a perfect likeness of a full-robed Roman Bishop, minus his head.

Passing on a little further we reach a room of magnificent proportions, beautifully ornamented, with an innumerable number of snow-white pendants—stalactites—hanging in almost every conceivable form. Some like garments hanging in a wardrobe, with every seam and fold complete; others resembling beautifully arranged curtains; others still presenting portions of fluted columns, pendant, and others pear-shaped or pointed. When a light is raised aloft, behind or among these beautiful, alabaster-like formations, the effect is beautiful beyond conception. The reflected rays glance through and among the myriads of varying forms, white as snow and translucent as crystal, presenting a sparkling glory that surpasses anything ever seen in art or conceived in fancy! This room has not inaptly been called "The Bridal Chamber"—its walls and floors and hangings of spotless white being emblematical of purity, love and innocence.

Through the courtesy and favor of the publishers of "Scenes of Wonder and Curiosity in California"—Messrs. A. Romsen & Co., of this city, we are permitted to present to our readers the accompanying view of this fairy scene. At the distance of about one-sixth of a mile from the entrance is another room known as Musical Hall. The localities described are but the more striking features of this interesting locality, which, with the wonders of California, is more fully described in the work above mentioned.

**OBSERVATIONS ABOUT COAL.**—According to the Fourth Volume of the Report of the Geological Survey of Illinois, which has recently been published, our bituminous coal is not amorphous in its construction, but is built up of thin layers of crystalline matter, about one-eighth of an inch in thickness, and separated from each other by a thin filing of pulverulent, mineral charcoal, which consists of a compound of cellular tissue and of the vessels of plants. The outline of the plants which go to make up these separating films, is often so perfectly preserved, that the genera, and even the species to which the remains belong may often be recognized at first sight.

In cannel coal, which is supposed to have been formed under water, the distinctive forms of this vegetation has been generally lost by a more perfect decomposition. Even in the anthracite of Pennsylvania, which has been subjected to heat, so long as to become fused, as it were into cohesion, one can easily discern not only the separating films, but an abundance of remains of plants, also, whose genera, and even species are sometimes recognizable.

These facts have been well ascertained by microscopical examinations; and it is suggested that they should be taken into account in examining new theories in relation to the formation of coal.

**SULPHUR.**—The *Alta* says that the sulphur refinery establishment on the eastern bank of Clear Lake was closed on the first of the month, on account of the retorts being unfit for longer use, and from the further fact that the company have now 400 tons of refined sulphur on hand, while the annual consumption in the State is only 700 tons. The price of the imported article is now so low, and the amount of the crude article in sight at the company's works so small, that it is considered doubtful whether the work of refining will be resumed again very soon. An attempt was made to refine sulphur at a bank in Colusa county, some time since, but the stock of good material was soon exhausted and the works were closed up.

**ANGORA GOATS.**—Mr. Peltier, of Mulwala, Australia, who has bred pure Angora goats for several years, says they give more and richer milk, are more hardy and better able to stand the droughts and are not so easily injured by young grass as the common goat. He calls the Angora the "poor man's friend."



## USEFUL INFORMATION.

## Relief from Mosquitoes.

We some time since copied a paragraph which has gone the rounds of the press generally, to the effect that occasionally burning a little camphor in a room is a sure relief from mosquitoes. The *Hearth and Home* also published the same with a request that if any of their correspondents should make the experiment and find it successful they would communicate the fact. That request brought the following reply:—"I have been a sufferer—I am no longer one—at least so far as mosquitoes are interested. I followed your recipe word for word, and my chamber is no longer the reception room for these tormentors. I let my window remain open with perfect safety now. Twice during the seven days, since July 2d, I have burned camphor as directed, and although I left the windows and doors open, and could hear the distant drowsy hum of my oney just without my fortress, it was thus far and no further with them. Since then I have experimented with them. Prisoning some twenty or more under a glass case, I puffed a small cloud upon them. In three minutes after a frantic struggle to escape what must have been to them a deadly npas, they perished miserably."

## Concentrated Vegetables.

The general attention that has of late years been paid to the preservation and concentration of articles of food, continues to issue in new and occasionally valuable processes—though many of those put forth turn out on trial to be either wholly useless or quite impracticable save in the hands of such as have been specially trained; to their management, in which category the following process for the concentration of vegetables is destined to fall, has yet to be determined. The aim is to put the solid portions of vegetables in such a shape that they may be readily preserved, and easily prepared for use when wanted, at the same time reducing the bulk and preserving their flavor. The way this is attempted in the case of potatoes will serve for illustration: After being thoroughly washed, the potatoes are boiled until done and their skins removed. The potato is then divided into fine vermicular particles by mechanical means, and while in this state the water is driven off by exposed heat. The material is left in a condition much resembling rice, and in this shape it is ground to flour if desired. The extract of potato prepared in this way can be used for making soups and other dishes; and by adding boiling water, a dish in every way resembling mashed potatoes, cooked directly from potatoes in the ordinary manner, is obtained, but, it is said, of superior flavor and quality.

## To Tan Small Skins.

Place the hide on a smooth, round sided-slah, made for the purpose, with two legs in one end, and the other end resting on the ground, drive a nail in the upper end to hold the skin from slipping while fleshing. Scrape off all the flesh with a blunt knife, being careful not to tear the hide. Then take the brains of the squirrel and work them thoroughly into the skin; this renders the skin pliable. Then to preserve the skin from the ravages of insects, scatter on some powdered alum and a little saltpetre. Let dry; then stretch and work it until pliable as may be desired. The above is acknowledged to be a very good recipe for tanning all kinds of fur, although there may be better ones in use.—*Cor. Rural New Yorker.*

**THE FIRST UMBRELLA.**—History records that the French were the first to carry umbrellas. Their first appearance in England was greeted with ridicule, and the custom of carrying your shelter with you derided as a piece of French effeminacy. The few who first summoned courage to carry umbrellas through the streets of an English city were followed by jeering boys.

**How to KEEP COOL.**—During oppressively warm weather, it may prove a relief to remember that water applied to the wrists and temples and allowed to evaporate will cool the blood surprisingly. A sponge bath of tepid water before retiring will frequently insure a comfortable sleep in a hot night.

## Preserving Grapes.

As the season for grapes is rapidly approaching, the following may be of importance to the cultivators and consumers of this favorite fruit:

While grapes may be grown in such profusion and with so little labor, it is a remarkable fact that a supply for every household in the country is not produced, not only in the regular season of them, but to last till spring. There is no trouble in keeping grapes through the winter as fresh as when first gathered. In seasons when other fruit is scarce, no greater luxury can be enjoyed than a dish of fresh grapes in winter. In gathering grapes to be kept fresh they should be allowed to hang on the vines until they are fully ripe, and then gathered with care, to avoid bruising. The fairest bunches should be chosen to put away, and with a pair of small scissors all defective and bruised berries should be cut off. They should be then put in boxes well ventilated, and remain for a few days, when they should be packed in boxes holding six or eight pounds each, first sprinkling the bottom with a layer of mahogany sawdust, or, what is better, turning chips, then a layer of grapes, and then sawdust alternating to the top. It is not important that the box be tight; it is better that it should not be. These should be put in the coolest place in the house, where the air is dry.

## Polish for Leather.

A good polish for restoring leather tops dashes, etc., is made of two parts of good glue soaked in tepid water until it is thoroughly softened, then add three parts of crown soap dissolved in warm water, then add five gills of water and two gills of brandy or common spirits, rubbing it until it becomes smooth, stir this into the mass and afterward stir in two parts of wheat flour mixed smooth in cold water. The mixture is then put over a moderate fire and allowed to steam off a little but not to boil, stirring it well while over the fire.

It can be used immediately or made up into small cakes which can be dissolved at any time in a little water or beer. It can be put on with a brush, a thin coat only being required, and afterward rubbing it with a linen or silk cloth. This not only restores the color but also adds to the durability of the leather.—*Carriage Journal.*

**A PERPETUAL CANDLE.**—The perpetual candle is the name of a useful contrivance which has lately been introduced in this country from Russia. It consists of a small tube, within which is placed a close fitting wick, soaked with kerosene. This tube is screwed into a candlestick, and fits inside another tube made of white china, and resembling closely a candle in external appearance, the whole having the look of an ordinary candle and candlestick. By heating the top of the brass tube the kerosene-soaked wick generates a gas and gives a fine blaze through a number of small apertures in the end of the tube. By this simple and ingenious arrangement, it is said, a good light is furnished at a cost of one cent for five hours. Besides the point of economy, it is thought that the use of kerosene in this manner will be entirely free from danger of explosion.

**PASSAGE OF SOUND THROUGH THE ATMOSPHERE.**—The whistle of a locomotive is heard 3,300 yards through the air; the noise of a railroad train, 2,800 yards; the report of a musket and the bark of a dog, 1,800 yards; an orchestra or the roll of a drum, 1,600 yards; the human voice reaches to the distance of 1,000 yards; the croaking of frogs, 900 yards; the chirping of crickets, 800 yards. Distinct speaking is heard in the air from below to a distance of 600 yards; from above it is only understood to a range of 100 yards downward. It has been ascertained that an echo is well reflected from the water only when the voice comes from an elevation.

**A USEFUL PRECAUTION.**—There is a very simple process by which muslins used for ladies and children's dresses can be protected from catching fire. Dissolve a small piece of alum in the water in which muslins are rinsed. When dry, if a light be put to them, they will smoulder away slowly, but not break out into a blaze. And this, so far from being serious to muslin, improves its appearance greatly.

**EVERYTHING useful or necessary is the cheapest.** Walking is the most wholesome exercise; water, the best drink; and plain food the most nourishing and healthy diet. Even in knowledge the most useful is the easiest acquired.

## GOOD HEALTH.

## More About Cundurango.—The Other Side.

In our issue two weeks ago we gave the history of the introduction and alleged virtues of the Peruvian plant, known as *cundurango*, and it is perhaps but proper that we should mention in this connection, what we did not notice, until that article went to press, that many of our medical men do not agree with Dr. Bliss and others in their appreciation of this new cancer specific. Dr. Nichols of the Boston *Journal of Chemistry*, a high medical authority, remarks that "A great noise has been made regarding it [cundurango] by correspondents of newspapers, which we suppose is a new way of advertising a nostrum which it is in contemplation" to put on the track "as a sovereign cure-all for cancer and other malignant affection." The Doctor thinks Mr. Colfax is giving the matter undue notoriety by alleging that it has "cured his mother-in-law of cancer." This, adds the Doctor, sounds very absurd to intelligent physicians, who know that cancer is not a local trouble, but a disease affecting the system generally, and of a most malignant nature. He advises his readers "not to invest very largely in the cundurango, or any other nostrum claiming to have extraordinary virtues."

Dr. Antisell, of Washington, is also lacking in faith in the alleged specific. He has subjected the plant to chemical examination, and fails to find in it any unusual characteristics. He is inclined to class it among the "aromatic bitters," and states that what little medicinal virtues it has resides in the bark.

The "profession," with its usual caution, will of course discourage the very general introduction of this specific, until its characteristics and effects upon the human system have become more fully known, under the administration of careful and intelligent physicians. This perhaps is wise and proper; but judging from well authenticated reports, there seems to have been at least an apparent demonstration of its virtues, of sufficient significance to warrant a more careful and thorough experimentation with it.

## A Rival Cancer Cure.

The Boston *Herald* indorses the reputation of a physician of forty years' standing who says he has used cundurango in the country of its growth to cure cancer, and found it an efficient alternative, but not always certain. On the other hand, he used red clover tops in ten different cases without a single failure. This is valuable information, if its results shall prove to be as uniformly successful as this physician claims to have found them. At all events, clover is so abundant and inexpensive that it can be brought within everybody's reach. The manner of using is to make an infusion of the tops, dry or green, and drink freely, making also external applications to the affected parts. The paper above named comes to the defense of its "Old physician of high standing" and his new cancer remedy as follows: "The use of red clover for several cutaneous disorders has been familiar for years, among the old women who doctor with herbs in an amateur way in the back country, but it should not be scorned on that account. Many a crone culls simples as effective as the most elaborate prescriptions of the pharmacopoeia."

**EATING.**—Every animal eats as much as it can procure, and as much as it can hold. A cow eats but to sleep, and sleeps but to eat; not content with eating all day long, "twice it slays the slain," and eats its dinner over again. A whale swallows ten millions of living shrimps at a draught; a nursing canary-bird eats its own bulk in a day; and a caterpillar eats five hundred times its own weight before it lies down to rise a butterfly. The mite and the maggot eat the very world in which they live; they nestle and build in their own roast beef; and the hyena, for want of better, eats himself. Yet the maggot has not the gout, and the whale is not subject to sciatica. Nor does Captain Lyon inform us that an Esquimaux is troubled with the toothache, dyspepsia, or hysteries, though he eats ten pounds of seal, and drinks a gallon of oil at a meal, and though his meal lasts as long as his meat. But if eating is to produce diseases, what disease would be absent from the carcasses of Captain Cochrane's Siberian friends, who eat forty pounds of meat with twenty of rice porridge at a sitting?

## Inherited Inebriation.

Dr. Brown, a well known English writer on insanity, says:

The drunkard not only enfeebles and weakens his own nervous system, but entails mental disease upon his family.

The author of an elaborate article in the eighth volume of the British *Psychological Journal* in describing a class of persons fond of intoxicating drinks, says:

They are offsprings of persons who have indulged in stimulants, or who have weakened the cerebral organizations by vicious habits.

Mr. Darwin says:

It is remarkable that all the diseases arising from drinking spirituous or fermented liquors are liable to become hereditary, even to the third generation, increasing, if the cause be continued, till the family become extinct.

Dr. Elum, a London physician, in a recent work upon Physical Degeneracy, writes of the effects of alcohol, as follows:

All this, fearful as it is, would be of trifling importance did the punishment descend only on the individual concerned and terminated there. Unfortunately this is not so, for there is no phase of humanity in which hereditary influence is so marked and characteristic as in this. The children unquestionably do suffer from the sins of the parent, even unto untold generations. And thus the evil spreads from the individual to the family, from family to community, and to the population at large.

## Treatment of Felons

In the early stages, during the first three days, the finger should be put into a hot water as can be borne, and the temperature gradually increased for thirty minutes, or until the pain subsides, then apply a cool compress; cold compresses should be kept upon the arm, to cool the circulation and prevent the morbid deposits from being carried to the finger. The immersion of the finger in hot water may be repeated when the intensity of the pain requires it. If this treatment is persevered in faithfully it will scatter it.

Should this fail and the swelling increase, hot poultices made of slippery elm, corn meal, bread and milk, or hops, may be applied, frequently changing them, which will not only relieve the pain, but bring the felon to a head. When it is opened tepid poultices should be applied for a few days; after the inflammation has subsided it should be dressed with cold compresses, or a creamed or oiled cloth, to keep the parts moist and afford protection; if the poulticing is continued too long, it will draw effete matter to the part, and prevent its healing. For general treatment, give an occasional vapor, hot sitz, or pack, as may be indicated.—*Dr. McCall.*

**A USEFUL RECIPE.**—Rub four parts by weight, of yolk of eggs, in a mortar with five parts of glycerine. This compound has the consistency of honey, is unctuous, like fatty substances, but is easily removed by water. Applied to the skin, it forms a varnish, which effectually prevents the action of air. It allays the itching in cutaneous actions. Is unalterable, and can be exposed to the air for an indefinite period.

**TRANSPLANTATION OF BONE.**—M. Philippeaux has made some experiments upon guinea-pigs tending to prove that bone taken from an animal may be transplanted upon another animal of the same species. M. Ollier had made similar experiments before, but they were made upon the same animal and grafted in the same opening wherefrom they had been taken. M. Vulpian says that an important condition of success depends upon the age of the animals.—*Gaz. Médicale.*

**CIDER FOR A COLD.**—Common sweet cider boiled down to one half, makes a most excellent syrup for coughs and colds for children—is pleasant to the taste, and will keep for over a year in a cool cellar. In recovering from an illness, the system has a craving for some pleasant acid drink. This is found in cider which is placed on the fire as soon as made, and allowed to boil, then cooled, put in casks, and kept in a cool cellar.

**A HINT TO CONSUMPTIVES.**—A physician of no little experience says he has known several consumptive patients cured by observing the following rules: Live temperately, avoid spirituous liquors, wear flannel next to the skin, take every morning half a pint of new milk, mixed with a wine-glassfull of expressed juice of green hoarhound.



# Scientific Press.

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## San Francisco:

Saturday Morning, Aug. 26, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, August 23, 1871.—Legal Tenders buying 89½; selling, 89¾. Gold in New York to-day, 112½.

## Table of Contents.

The Akin Roasting Furnace—III.....	113
MECHANICAL PROGRESS.—Iron for Church Ed- ifices; Effects of Gold on Metal; An Ingen- ious Device; Piling and Selection of Scrap; Copper Coating.....	114
SCIENTIFIC PROGRESS.—Experimental Investi- gation of a New Force—III.; Origin of Hail.....	114
A Trip to Colorado—No. 7; Colorado to Utah; Mining Hoisting Works.....	115
MINING SUMMARY.—California, Idaho, Montana, Arizona and Utah.....	116-17
Market Review: Mining Shareholder's Direc- tory, etc.....	117
Patents and Inventions; Dr. Bly's Anatomical Leg—III.; Observations About Coal.....	118
Useful Information; Good Health.....	119
On the Assay of Gold; Changes in Immigra- tion: Copper Market.....	120
Hill's Patent Gang Plow—III.; An Improved State Roller—III.; Notes at the Mechanics' Institute Exhibition.....	121
Domestic Economy; Domestic Receipts; Me- chanical Hints; Life Thoughts.....	122

**CHANGES IN IMMIGRATION.**—A few years since, Ireland was the great source of immigration into the United States; and later Germany took the lead; but the present prospects are that both those localities are about to give place to England in supplying future citizens to the great Republic.

In 1863, 116,301 Irish left their home for this country, and the same year 76,473 English and Scotch came over. In 1870, the figures were nearly reversed, for in that year, only 74,283 Irish left their homes for America, while the number of emigrating English and Scotch reached 123,228. The German immigration which by reason of the war declined from 65,752 to 48,396, will doubtless again advance to its former figures or higher, as soon as the imperial armies are reduced to their peace footing.

The cause of the activity of English emigration is undoubtedly referable to a more general recognition among that people of the advantages which await emigrants in the United States. Democratic tendencies in England are also producing greater affinities for free institutions than was formerly the case, and are fast wearing away the prejudice which has heretofore been so strong against our government that it was rarely that an Englishman became naturalized. Under the new condition of things we may expect a more general tendency to naturalization among our English cousins who came over to dwell with us.

**NOW AND THEN.**—At the Institute Fair of 1865 there were only 984 entries, while the entries at the present exhibition numbers 1,781—nearly double the former.

**BET SUGAR IN ILLINOIS** does not promise a very great success; the soil is not well adapted to the development of the saccharine property of the beet.

**A SCHOOL OF PAINTING AND SCULPTURE.** At University College, London, a wing is being built for schools of painting and sculpture, intended for both male and female artists.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

(Expressly for the Press.)

Every miner can acquire with a little practice and proper instruction, skill and knowledge, sufficient to determine the quality and value of the gold dust he is toiling daily to win from the earth. The skill can only be acquired by practice. The instruction, it will be my pleasure to impart.

The implements and materials for the approximate assay of gold dust and retorted amalgam are neither expensive, bulky or numerous. They can be purchased in San Francisco at moderate cost. The ingenious miner can improvise many of them, and to aid him in doing so, full and careful description will be given.

**A BLOWPIPE.**—The simple form in common use by jewelers answers every requirement.

**A SPIRIT LAMP.**—One of glass in which the wick tube does not screw down is best and safest.

**AN EVAPORATING DISH** about six inches in diameter. This will be found very convenient for prospecting, concentrating sulphurets, etc., much better than the horn spoon in common use.

**TWO SETS OF TOUCH NEEDLES**, one the alloy of which is silver, the other copper. These needles can be made by any handy person. Absolutely pure gold and silver are required.

My plan is to draw out copper wire through a wire plate with square holes, to about the size of the square point of a ten penny nail. This is cut into lengths of about two inches,—five of these constitute a set. I commence each set with pure gold, but only one is necessary, for pure gold is of course the standard of either.

I weigh out 10 grains of pure gold, melt it before the blowpipe in a cavity in a piece of charcoal, hammer it square and solder it to the end of one of the square wires. This requires some skill and an understanding of the nature of this kind of soldering, but any jeweler can do it from this description. When soldered, I file it down even with the sides of the wire and stamp on the wire near it 1,000, which represents pure gold. For the other end I make an alloy by weighing out very carefully nine grains of pure gold and one grain of pure silver; these are melted on charcoal, together—care being taken that sufficient heat is produced to render the alloy perfectly fluid—hammered square and soldered in the other end of the first needle. This is stamped 900. One needle being complete, the others are made in the same way as follows:

8 grains gold.	2 grains silver.	Stamped 800.
7 " " "	3 " " "	" 700
6 " " "	4 " " "	" 600
5 " " "	5 " " "	" 500
4 " " "	6 " " "	" 400
3 " " "	7 " " "	" 300
2 " " "	8 " " "	" 200
1 " " "	9 " " "	" 100

The second set is made in exactly the same way except that copper takes the place of silver in the alloy.

If you make these needles yourself you have the satisfaction of knowing that they are correct. The only source of error is the heating of the solder so hot that it melts the alloy, and by fusing with it a new and unknown alloy is formed. The alloy should be considerably larger than the needle so that it can be filed down, thus removing the solder from all parts except where the copper is joined to it.

**A TOUCH STONE.**—This is best purchased, but the black quartz stones found in the beds of some rivers and creeks, will answer the purpose if they will scratch glass, and acids have no effect upon them. A smooth face should be formed by grinding them down on a grindstone and finished by rubbing with oil and emery on a flat board, or other level surface. An ordinary oil stone gives them a good finish. They must be washed thoroughly with soap before being used to remove the oil used on grinding.

**CUPELS OF BONE ASH.**—These should be about .6 of an inch in diameter at the top, .5 at the bottom and about .4 thick. The hollow cup-like cavity should be about .1 of an inch deep. These are made with a brass mould which can be purchased in San Francisco, or what may be made of hard wood in an ordinary turning lathe.

**A SUPPORT FOR THE CUPELS.**—This is made of wire, one end of which is bent in a ring larger than the bottom of the cupel, and smaller than the top. The wire is fixed into a handle, the support may be

made of strong brass or copper wire, the end passed through a piece of clay pipe stem, to serve as a handle; but a much more elegant arrangement is to use a wire of platinum, soldered at the point of the ring with gold, (the best solder for platinum) the end of the wire is then fused into the end of a glass rod which being a perfect non-conductor, forms a most admirable handle. Such a support is not expensive, and is far its best.

**A BALANCE AND WEIGHTS.**—This, which must be accurate, is the most costly of any of the necessities. A good balance cannot be bought for much less than \$40, but a cheap substitute similar to the one described in Dr. Barstow's little book "Sulphurets,"\* can be furnished for a small sum. Such a balance will answer if well made for approximate assays.

For weights, I would recommend the gramme divided into 1,000 parts, but any other small weight will do for a unit; 10 grains divided into thousandths will be found convenient.

**A SMALL BRUSH**, called by artists and painters a "flat fitch." A portion of the handle should be cut off leaving it about four inches long.

**A COLD CHISEL** and a small flat piece of iron or steel to be used as an anvil.

**A MAGNET** for removing iron sand from gold dust.

**A PAIR OF PLIERS** may be made of a piece of tin or sheet brass folded once and filed into shape.

**A PAIR OF STRONG PINNERS.**

**A HAMMER.**

**A MAGNIFYING GLASS.**

**ONE-HALF DOZEN TEST TUBES** and a few dry cups.

**A COIN TEST.**—This is a small bottle with elongated stopper by means of which a small portion of acid may be lifted and placed upon the touch stones. A glass rod may be used instead of the above.

**HESSIAN CRUCIBLES**, triangular, about four inches high.

**WATCH GLASSES.**—Those with a small flat surface in the center answer best.

**A CHARCOAL SUPPORT.**—Best made by filing a piece of sheet brass into a three-pronged fork, the center tine of which is a little the longest. This is then fixed into a handle. It is used simply by sticking the points into the side of a piece of square charcoal upon which you lay the substance to be heated. A common table fork will answer.

**DISTILLED WATER.**—Melted snow, or rain water will be found sufficiently pure. The water of some mountain streams is free from chlorine which is the impurity that is objectionable. Any water from which no precipitate or milkiness results on adding solution of nitrate of silver, will answer the purpose.

**NITRIC ACID** which must also be free from chlorine and must stand the test given for distilled water.

**HYDROCHLORIC ACID.**

**AMMONIA.**

**TEST ACID.**—This acid made by mixing 98 parts pure nitric acid of a strength indicated by 37° Baumé, 2 part of pure hydrochloric acid of 21° Baumé, and 25 parts of distilled water.

**CLOSED TUBES.**—These are of glass about one-fourth of an inch inside diameter, made by cutting a glass tube of proper size into lengths of about three inches, and closing one end by melting the glass in the blow-pipe flame.

**LEAD FOIL** made by rolling out lead thin in a rolling mill. The lead must be so pure that if you cupel a square inch of it the button remaining on the cupel is scarcely visible even under a magnifying glass. It should contain no trace of gold.

**PURE SILVER** rolled out into thin sheets to be cut with scissors, or in a powder, for convenience of weighing.

\*Printed and sold at the SCIENTIFIC PRESS office.

**HEARTH AND HOME.**—In October last this popular journal passed into the hands of Messrs. Orange Judd & Co., of New York, the well known publishers of the American Agriculturist. It is a handsome sheet adapted to the wants of both adults and juveniles, and merits a prominent place in every household. It supplies very useful chapters for the garden and farm, and an important news sheet giving a valuable resume of the news of the week up to the moment of issue.

**MACHINERY.**—Agricultural implements etc., to the value of over \$27,000,000, was exported from England last year—more than half of the amount resulting from the sale of steam engines.

## Notes on Contributions to our Cabinet.\*

Nos. 525 and 526.—We have received two specimens of "Hat Rock," from Mr. Geo. Dietz, Superintendent of the "Eureka Silver Mining Co.," in British Columbia, about six miles from the town of Hope. The mine is just being opened and of the specimens referred to, one, No. 525 is from the surface cropping as the name "hat rock" implies, and the other, No. 526, is from the ledge eight feet below the surface. The rock shows a general water worn appearance, is covered with oxide of iron, and in some places crumbles easily under the pressure of the finger.

\*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

**LIVERPOOL COPPER REPORT.**—We learn from James Lewis & Sons' copper report for Aug. 1st, that during the previous month the copper market exhibited great activity until about the 24th, when the demand suddenly ceased, and the business since has been but trifling. On the 11th the English smelters advanced their quotations £2 per ton, and the present prices are £76 for cast and ingot, and £81 for strong sheet, but they have a difficulty in obtaining these prices. Sales of ore and regulus have been:

	Tons.	Per Unit.
July 11th.....208 Regulus. Chile, at Liverpool, 14s. 0d.		
" 19th.....19 " Battle Mt. " 14s. 0d.		
" 25th.....35 " Canadian " 14s. 0d.		

**GOLD.**—77s. 9d. per oz. standard.  
**SILVER.**—Has advanced to 50 11-16 per oz. standard. California sells at 5 1½; Mexican Dollars, of new die, for 4 11 per oz.

**QUICKSILVER.**—has further declined to £9 per bottle of 75 lbs.

**ANTIMONY.**—French Star £49 to £50 per ton.  
**LEAD.**—Has fallen to £17 15 - to £18 for English, and £17 7-6 to £17 10 - for Spanish.

**TIN.**—Market firm at £134 for Straits, and £100 to £118 for Peruvian.

"THE VISITORS' GUIDE AND CATALOGUE TO THE EIGHTH INDUSTRIAL FAIR" has made its appearance, and several of our cotemporaries have been led into the error of supposing that this is the first publication of the kind ever made in connection with the Exhibition of the Mechanics' Institute. The *Alta* of Tuesday corrects that error in the following words:—"Although to Mr. Price belongs the full credit of having again started the catalogue, we were in error in speaking of it yesterday as the first of its kind. Messrs. Dewey & Co., of the MINING AND SCIENTIFIC PRESS, in 1865, issued a very neat and comprehensive catalogue for the Fifth Industrial Exhibition."

## The Overland Monthly for September.

This original and improving magazine contains its usual variety of amusing and instructive articles. The first discusses the probability of the success of Capt. Hall's Arctic expedition, another treats of the Mormon problem under the heading of the "Mahomet of the West," and another, entitled "Shakes," is one of those characteristic California stories for which this periodical is noted. Several other prose articles and a few in poetry complete the series which can be read without the interruption of continued articles—a source of gratification to most readers of magazines. We notice that in future issues the enterprising publishers intend to occasionally illustrate one or more articles, and that only such places and articles will be illustrated as will have special interest for readers on both sides of the continent.

**ANTIDOTE FOR TOBACCO CHEWING.**—It is said that tobacco chewing propensities may be effectually eradicated by chewing gentian root, after meals, and swallowing the saliva.

**THE BARTLETT PEARS** received this week, prepaid, from C. W. Pomeroy, San José, are the best we have seen or tasted.

**HEAVY** land if reduced and pulverized, as it can be when completely dry, will not forget it in years.



**Combined Seeder and Cultivator.**

The machine, a representation of which is herewith shown, is known as "Gorham's Combined Broadcast Seeder and Cultivator." Many devices have been introduced to do the work performed by this machine; but all have more or less objectionable features, which it is difficult to surmount. Perhaps one of the greatest difficulties encountered is that of effecting a uniform sowing of the grain.

Any machine that has a continuous dropping orifice, or a multitude of separate and smaller ones, or those which open and shut, and with stirrers over them, must be defective, from the fact that it is impossible to measure through such orifices. Again, machines which have measuring cups that open and shut, are always liable to be choked with straw, or to fail, from the fact that the opening and closing may not always be uniform. Hence the grain is sown unequally, and want and waste ensue.

It is claimed by the inventor that this machine obviates this difficulty by adopting the following seeding device: A series of seed wheels or droppers is placed two feet apart, and attached to a shaft that runs through the center of the box. To each of the seed wheels five cups are attached; each wheel is enclosed by partitions on either side that are open at the bottom to admit the grain to the wheel. Now when the seed wheels revolve, the cups are drawn upward through the grain, each taking a given quantity which in passing around is poured on the beveled surfaces in front that deflect the seed into troughs on either side, where it runs in a continuous stream upon the scatterer below.

It will be readily understood by the above description that the essential principle is the measuring and pouring of the seed, and that this result is produced by a device that cannot cut or injure the seed in its passage to the ground.

The scatterer is a distinct fixture that receives the grain from the seed wheels, distributing it equally over the land; and yet being so open in its throat as to pass straw and other foul substances without clogging.

The quantity sown is regulated by different sized gears, placed at the end of the box, which give the seed wheels different motions. Grass and other small seeds are sown, by inserting a supplemental cup in the grain-cups, closing the grain orifice, leaving an orifice proportionally large for the smaller seeds, when the same series of gears are used to regulate the quantity per acre. Thus it is that the finest seeds as well as the coarsest grain are distributed with the greatest accuracy.

The cultivator attachment for this seeder is on the independent slip-tooth principle, with a new device, very simple and effective.

It will be seen by the accompanying illustration that the cultivator is raised in two sections, thus avoiding the necessity of a very heavy lift, as when all the teeth are raised at once.

The cultivators can almost instantly be detached if occasion requires. The weight of the 6-foot machine is 500 lbs. only, and is banded easily by an ordinary team in any kind of soil. This is the smallest size; but there are three sizes larger. It sows equally well in windy or still weather.

One of these machines may be seen in the Agricultural department at the Pavilion. It is now for the first time introduced to the farmers of California. It has been largely introduced into Idaho, where we understand it is giving the fullest satisfaction. We have seen numerous testimonials to that effect.

Betts, Brown & Co., are the owners of the patent right for all the Pacific States and Territories except Idaho and Montana. W. H. Pope, General Agent.

**An Improved Bearing for the Wheels of Roller Skates.**

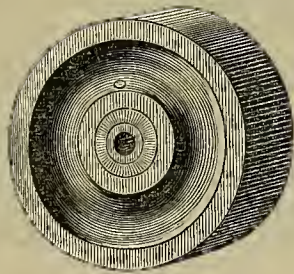
Iron and steel have been tried as a bushing or bearing for the wheels of roller skates, and have been found wanting, from the fact that both these materials wear quite irregularly, and, moreover, require the use of oil, for lubricating, which is found very inconvenient, from the fact that it often seriously defaces clothing, etc., with which it comes in contact.

To remedy these defects, ivory has been substituted, which requires very little oil, is always clean and without stain, runs easier than metal, and is quite as durable. Sets have been used in this city, daily, for three months, without deterioration, the wear being even and smooth. On the ordinary skates, when the body is thrown forward, the wheels are very liable, when worn, to hold back and throw the skater. This difficulty is done away with in the use of ivory, for there is less friction, and consequently an easier motion is produced.

By the use of skates provided with these wheels a greater speed can be attained, and with less fatigue, than is usual; and by their smoothness of action the feats usually performed by more accomplished skaters can be done with greater facility and

**GORHAM'S COMBINED BROADCAST SEEDER AND CULTIVATOR.**

grace. Rollers with ivory bearings are rapidly being adopted by experts and professional skaters. A patent for this in-

**COOK'S IMPROVED SKATE ROLLER.**

vention has been obtained through the agency connected with this office. The inventors, Messrs. S. P. & H. B. Cook, of this city, are ready to furnish the rollers, with their patent ivory bushing, to makers or users of skates.

For further particulars address M. Cook & Son, Box 1124 San Francisco.

A TUNNEL is to be dug under Lake Erie, a mile and a half from shore for the purpose of supplying the city of Cleveland, Ohio, with pure water, after the manner of Chicago.

QUERIES FOR MECHANICS.—In our article under this head, Aug. 12th, we should have printed the word "dogs" instead of "chucks."

**Notes at the S. F. Mechanics' Institute Fair.**

[In these articles we have room only to notice briefly such articles as come specially under our observation. More replete descriptions of the most interesting and instructive exhibits will be given in the Press in our greater leisure hereafter. No classified catalogue being published we do not in this number give complete notices in any particular department.]

KNOWLES' PATENT PUMPS are represented by A. L. Fish, S. F. agent. The display is a good one, and is located prominently at the entrance to the machinery department. The large pump works well and is highly spoken of by practical men. It was illustrated in our issue of July 22d.

HOOKE'S STEAM PUMP, a California invention, patented by the SCIENTIFIC PRESS agency, we believe possesses superior merits, likely to place it in the front ranks of the hydraulic inventions of the day. It is compact, simple and apparently of durable and cheap construction. Mr. Hooker manufactures his pumps in his own shop, in this city and, in a measure, with his own digits, and although his exhibit is the modest one of two small sized pumps, it will be difficult to find many home in-

RAMIE.—Messrs. Finch & Meek exhibit a fine specimen of the Ramie (or Chinese grass) plant, some six feet high, said to be about the average size in their field in San Lorenzo, Alameda Co. They also exhibit a machine for separating the fibre from the woody portion of the stalks or branches of the plant. It is one of the only seven machines yet made in the U. S. A series of corrugated rollers form the operative part of the apparatus, which seems to do its work effectually. The exhibitors do not intend to harvest their crop, but will layer the plants this season to produce cuttings for cultivating a 200-acre field they are about purchasing in Los Angeles. Samples of cloth are shown from a new manufactory built at Calhoun Falls, N. Y.

A PATENT GOVERNOR exhibited by J. Hendy, shows a simple and not expensive construction with the apparent merit of sensitive action on the steam valve and a motion to stop the engine in case of leakage. Invented and perfected by San Francisco mechanics and patented by Dewey & Co.'s agency.

A STEAM WASHING MACHINE just patented through our agency, exhibited by H. E. Lea, of Half-Moon Bay, will be described and perhaps illustrated by us at another time. J. Burnap, 425 Davis street, S. F., is the agent for the inventor.

FINE STATIONERY is displayed by John G. Hodge & Co. They are agents for Carey's fine ledger, letter and flatcap writing papers, the best reputed of any manufactured in the Union. Also for Faber's imported pencils.

QUARTZ MILL.—Geo. A. Lloyd's improvements consist in attaching springs to the upper part of the stamp stems which greatly increase the force and number of the blows, thereby creating rapid work. Mr. L. has quite a number of other interesting patented inventions including a reversible door butt and spring combined; egg and fruit carrier; gopher trap; improved anchor; easy threading needle.

ADJUSTABLE CAM FOR QUARTZ MILLS; IMPROVED DUMPING CARS; SHUTE FOR QUARTZ MILLS, all invented and patented by James M. Thompson, of Mammoth mills, Jamison Creek, Plumas county.

ATTACHMENT OF WEIGHTS TO WINDOW SASH by the employment of thin strips of steel fastened by new devised clamps; by John Marquis, architect, S. F.

PRES. HALLIDIE'S PATENT ENDLESS WIRE ROPE WAY is fully illustrated in the Press Feb. 18, 1871. It is operated with his improved clutch pulley patented through our agency. This railway is claimed to be an improvement on the English system of elevated railways now successfully introduced and in practical operation at Eberhardt, White Pine, Nev. Mr. Hallidie's railway extends throughout the machinery department, and like his suspension bridge in the main hall of the Pavilion, is one of the leading features of the exhibition.

ROLLER SKATE.—John L. Boone displays seven pairs of different sizes of his patent C-Spring Skates, already illustrated in the Press. As one of the most original California inventions it attracts much attention and many favorable remarks.

CALIFORNIA INVENTIONS.—Among the most novel inventions exhibited by our own Pacific Coast inventors and patentees, we would briefly call notice to the following either specially interesting or worth examining. A number of them as well as others on exhibition will be described at length when our columns are less taxed, or illustrations provided:—

THOMAS HILL'S STEAM RAM and projectile for war steamers—a beautiful and thoroughly constructed operative model. Illustrated in the SCIENTIFIC PRESS in 1870. Mr. H. has various other inventions each worthy of a fortune.

[Continued on page 124.]



## DOMESTIC ECONOMY.

### The Art of Dining.

The mind has its diseases as well as the body, and I think vegetarianism is one of them. It is by practical experience that we learn what food is proper for us, and not by chemical analysis. Everything we eat with the exception of salt, can be turned into charcoal; yet who can live on charcoal? An experiment has been made by the great chemist, Magendie. He fed geese on gum only and they died on the 16th day; he fed some on starch only, and they died on the 24th day; he fed the others on the two kinds mixed together and they fattened instead of dying. So we must vary our food as much as possible in order to supply the waste of every part of our system. In cooking vegetables, green vegetables, such as cabbage, spinach, etc., they should be put into water at its first boiling, with salt. Dry vegetables, like beans, peas, etc., should be put over the fire in cold, soft water, after having been soaked in luke-warm water—beans for twenty-four hours. Potatoes should be steamed but never boiled. Steam with the skins on. Bear in mind that a potato must never be peeled, as the part immediately under the skin contains much nutriment. Cut out the eyes or germs in any; if young and tender, the skin can be taken off with a scrubbing brush; if old, scrape the skin off and then roast them. In selecting the potato, remember the smaller the eye the better the potato. By cutting a piece from the thickest end, you can tell whether they are sound. They must be either white or pink, according to the kind. Always select beans without spots. Milk and eggs partake of the nature of animal as well as vegetable food. Fish is less nutritious than meat, containing only 20 per cent. of nutritious matter, but ought to be partaken of at least twice a week. It contains more phosphoric matter than any other food, and is very good to supply the waste of our system, especially of the brain. The brain of an idiot contains about one per cent. of phosphoric matter, while that of persons of sound intellect from two to two and a half per cent. The brain of a maniac contains three and a half per cent. We need not fear, however, of losing our senses from eating too much fish. It supplies the waste, but does not augment the proportion of the "phosphoric matter." The chemistry of the matter might, perhaps, be stated with more precision. For instance, instead of saying that everything we eat might be turned into charcoal, it would be more accurate to say that carbon, being the one solid of the four organic elements, the others may be driven off by heat, leaving the carbon behind in the form of charcoal.—*Prof. Blot.*

### How to Make Chocolate.

Take an ounce of chocolate for each person; scrape it and boil it about five minutes with about four tablespoonsful of water. When smooth, add about a pint of new milk; let it boil, stirring it well. Buttered toast is the proper accompaniment of chocolate, or light cake, made thus: Half a cupful of butter; one egg; two spoonfuls of cream of tartar, stirred with the butter and egg to a foam, one small cupful of sour milk added to this; three cupfuls the same size, of flour, sifted and well beaten into the liquid; and one small spoonful of soda, dissolved in hot water, and mixed in the cake just before putting it in the oven, which must be hot enough to bake it in ten minutes. Bake in narrow cake-pans, filling them three inches deep.

**HOW TO WHITEN FLANNEL.**—Flannel which has become yellow by age may be restored to its original whiteness by the solution of one and a half pounds of white Marseilles soap in 50 pounds of soft water to which is added two-thirds of an ounce of spirit of sal-ammonia and the whole thoroughly mixed. The flannel is to be immersed in this solution and well agitated, and afterwards thoroughly washed off in pure water.

The same result may also be obtained, still more quickly, by immersing the flannel for an hour in a dilute solution of acid sulphate, and therein dilute hydrochloric acid in the proportion of one part of acid to fifty of water. The vessel is then to be covered over and allowed to remain for a quarter of an hour, when the articles are to be removed and thoroughly washed.

### How to Make Coffee.

Professor Blot says: Grind the coffee, rather fine than otherwise. I use a coffee pot with a filter. You can get them at any tin store. Mixed coffee is best. I prefer a mixture of Java, Mocha and Maracaibo. Soft or spring water is best. Proportions, one quart of water to three ounces of coffee. Of course it can be made stronger or weaker. Four teaspoonsful make a quart of very good coffee for breakfast, but it is too strong for children.

In selecting a filter, or "coffee higgins," choose one with a bottom of silvered gauze, instead of perforated tin, as the perforated bottom lets the finely-ground coffee through. Good coffee cannot be made in what is wrongly called a coffee pot, which has no filter, and is much like a tea pot. Such a utensil requires the coffee to be boiled, which ruins it, leaving a bitter taste, and scuds all the aroma to the attic.

When the water is boiling hot, put the coffee in the filter, and pour the water over it, and the coffee is made. If the water does not pass through fast enough, set the kettle on the fire again until the water in it boils, when pour it on again. If all the strength is not extracted at the first making, repeat the operation when needed. The coffee may be dark, even black, when strong, but it must be clear. Each kind of coffee must be roasted separately, and it is better to roast it a day or two before using.

### Stewed Beef.

Housewives who are in a habit of using only steaks and roasts make a great mistake. A capacity dish may be made out of the "chuck" as the hutchers call it, or the neck when well prepared. Select a piece of meat as large as the demand of your table may require, wash it well to remove all the blood or soil from the outside, have your dinner pot perfectly clean, salt and pepper the meat well, lay it in the bottom and cover it with water; boil it from two to three hours or till it is thoroughly tender; add half an onion, a sprinkle of sage, thyme or summer savory.

If the meat is fat, let the water all stew out a half an hour before it is put on the table, and when your meat is browned well on the lower side in the gravy, turn it over and brown the other side. When ready, take it up, add a little flour thickening to the gravy, or if you have a dredge box shake the flour into the hot gravy and brown it, then add boiling water and you will have a dish equal to and to my mind superior to the common roast beef upon boarding house tables.

Care must be used to turn it; and equally necessary is good judgment in having it thoroughly well cooked.

**A COOLING BEVERAGE FOR SUMMER.**—Hard, hot work in the fields produces thirst, and we give a recipe to make a cool, healthy beverage for the harvester:

Put two gallons of cold water into a pot upon the fire; add to it two ounces of good ginger bruised, and two pounds of white or brown sugar. Let this come to a boil, and continue boiling for about half an hour. Then skim the liquor and pour into a jar or tub, along with one sliced lemon and a half an ounce of cream tartar. When nearly cold put in a teaspoonful of yeast, to cause the whole to work. The beer is now made; and after it has worked for two days, strain it and bottle for use. Tie down the corks firmly.

**HOW TO CLEAN OSTRICH FEATHERS.**—White ones, if washed in warm soap suds, dried in the sun on a towel and then well shaken out, will look as well as new, except they will want the beautiful curl, which even at first disappears the first damp day. At first, the feather will have a most discouraging appearance, and a novice is apt to think it perfectly spoiled, but the hot sun, or, failing that, a good fire, never fails to restore its pristine glory.

**TO PREPARE LIVER.**—When to be roasted whole soak three hours in cold water; when to be boiled, wash only; when to be cooked in slices, have water with a little salt on the fire; as soon as it boils throw the liver in for about five minutes, then take it out and drain it.

**TO PRESERVE FRUIT FRESH.** beat well together equal measures of honey and spring water in an earthen vessel; put in your apricots, plums and peaches, freshly gathered; cover closely, and they will keep fresh for a year. When taken out for use, they must be rinsed in cold water.

### Domestic Receipts.

**TO PREPARE BEEF A LA MODE.**—Procure a round of beef, weighing ten or twelve pounds. Remove the bone, and place the round in a deep earthenware bowl. Mix in a vessel two equal parts—say a teaspoonful—of salt, ground allspice, and ground black pepper. Rub the beef well on both sides with half of this mixture, then pour over it a pint of vinegar, and set away until the following morning, when you will use the remainder of the salt and spice, turning the beef so that the part that was under before, shall now be on top. Set away for another night. The second day it will be ready to cook. Before placing in the stove, make holes about an inch deep on both sides of the beef, and fill it with chopped onions. Fill the place left by the bone, with a dressing of bread crumbe and herbs, and bake in the vinegar. This is a most excellent dish when warm, and when cold is very nice for persons who have delicate appetites, or invalids who have little relish for meats.

**TO KEEP TOMATOES FOR WINTER USE.**—By the following method we may have tomatoes all the year round, which can scarcely be distinguished from those picked fresh from the vine: Dissolve a teaspoonful of salt in a gallon of water. Pick ripe tomatoes, but not over-ripe, leaving a little of the stem on. The tomatoes must be kept well covered with the brine, and they will keep till spring or longer.

**POTTED TONGUE.**—Remove the rind of the tongue, cut and pound it in a mortar as fine as possible with the butter, and the spices beaten fine. When perfectly pounded, and the spice well hleuded with the meat, press it into small potted pans, and pour clarified butter over the top. A little roast veal added to the potted tongue is an improvement.

**MILDEWEED LINEN** may be restored by soaping the spots, and, while wet, covering them with fine chalk, scraped to powder and well rubbed in.

### Mechanical Hints.

**POLISHING.**—The beauty of cabinet work depends upon the care with which it is finished; some clean off by scraping and rubbing with glass paper; this should be done in all cases, but it is not enough, particularly where the grain is anyway soft; a good glass paper is also essential; a polish should then be added. But unless the varnish for cabinet work be very clear and bright, it will give a dingy shade to all light colored woods; this should therefore be a previous care.

**THE FRENCH METHOD OF POLISHING.**—With a piece of pumice stone and water, pass regularly over the work with the grain, until the rising of the grain is down; then with powdered tripoli and boiled linseed oil polish the work to a bright face; this will be a very superior polish, but it requires considerable time.

**CHEAP OIL POLISH.**—The cheapest and most simple oil polish is, first, having well cleared the work, to oil the article with linseed oil, when by oiling and rubbing for a short time a bright gloss will be produced, and the natural color of the wood will show to much advantage. When it is required to darken the color, alkanet root, dragon's blood, or other coloring matters which dissolve in oil, slightly heated, are mixed with the above.

**TO POLISH IVORY.**—If ivory be polished with putty and water, by means of a rubber made of old hat, it will in a short time produce a fine gloss.

**TO POLISH ANY WORK OF PEARL.**—Go over it with pumice stone, finely powdered, (first washed to separate the impurities and dirt,) with which you may polish it very smooth; then apply putty powder as directed for ivory, and it will produce a fine gloss and a good color.

**TO POLISH TORTOISE SHELL OR HORN.**—Having scraped your work perfectly smooth and level, rub it with very fine sand paper or Dutch rushes; repeat the rubbing with a bit of felt dipped in very finely powdered charcoal with water, and lastly with rotten stone or putty powder; and finish with a piece of soft wash leather, dampod with a little sweet oil.

**FRENCH POLISHING.**—All polishes are used much in the same way. If your work be porous, or the grain coarse, it will be necessary, previous to polishing, to give it a coat of clear size previous to your commencing with the polish; and when dry, gently go over it with very fine glass paper; the glass will fill up the pores and prevent the waste of the polish by being absorbed into the wood, and he also saving of considerable time in the operation.

## LIFE THOUGHTS.

Above all things reverence thyself.—*Pythagoras.*

Advise not what is most pleasant, but what is best.—*Solon.*

ARROGANCE is the obstruction of wisdom. *Bion.*

AVARICE and vanity are the principal elements of all evil.—*Timon.*

A BLUSH is the complexion of virtue.—*Theophrastus and Diogenes.*

AN honorable death is better than an inglorious life.—*Socrates.*

ALL things should be common between friends; our friend is another self.—*Pythagoras.*

A GOOD man cares not for reproach of evil men.—*Democritus.*

A JUST man ought to be esteemed in preference to a relation.—*Antisthenes.*

A MAN ought to be good, or to seem so.—*Democritus.*

A STATUE stands firm on its base, a virtuous man on firm resolutions.—*Socrates.*

A MAN must not only live to eat and drink, but to use his life for the attainment of happiness.—*Zeno.*

An orator without judgment, is a horse without a bridle.—*Theophrastus.*

As the gods are consummately happy, the nearer a man approacheth to a similitude with them, the happier and better he is.—*Socrates.*

A WISE man is not governed by the laws and ordinances of men, but is governed by the rule of virtue.—*Antisthenes.*

As gangrenes are the most dangerous of bodily wounds, so insatiable avarice is the worst disease of the mind.—*Democritus.*

### Honest Words for an Earnest Man.

Religion does not altogether consist of devotional exercises, but as well, of daily work. We get a wrong idea of Christianity when we reduce it all to songs and sermons, to prayers, solemn faces, and ecclesiastical paraphernalia. It is not especially for Sabbaths and sanctuaries, but also for week days, for shops, for homes, for mills, for stores, for streets and fields. Religion is largely an out-door institution. Its Author was born, baptized, transfigured, and crucified under no roof but the sky. It means diligence in business, serving the Lord in common vocation and every day relations, as well as in consecrated syllables on set occasions.

Jesus was more sublimely great, standing unknown at the carpenter's bench in Nazareth, with an apron on, than if he had been surpliced as a priest in the temple, or arrayed in robes of royalty on Pilate's throne. He was greater with an adze in his hand than a crown on his head.

Christianity allows no aversion toward the mechanic. It gives him an honorable position. It invites him to its home and visits him in his. Yet how many rich young ladies who would scorn to associate with the sons and daughters of our workmen! The matrimonial problems that busy their brains involve such fractions as lawyers, physicians, large salaried preachers, wholesale merchants, millionaires, and gentlemen of leisure. It would be ridiculous, they think to throw themselves away on mechanics.

Of course society has its affinities, and that is well. Education grants it. Refinement and culture seek their level. But we dig down for gold. Too often dissipated dandyism is petted and honored, while intelligent labor is denied a place. The difference between building houses and selling is not so great that one should be considered contemptible and the other illustrious. Really, as a business, it makes but little difference whether a man mends clothes, bones, pens, houses, laws or morals. Work is work and nothing less; man is man and nothing more.—*Alexander Clark.*

Reprove mildly and sweetly, in the calmest manner, in the gentlest terms; not hastily or fiercely, nor with sour looks, or in bitter language; for these ways do beget all the evil, and hinder the best effects of reproof. They do certainly inflame and disturb the person reproved.

The intoxication of anger, like that of the grape, shows us to others, but hides us from ourselves.

To be ever active in laudable pursuits is the distinguishing characteristic of a man of merit.



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Proprietors.  
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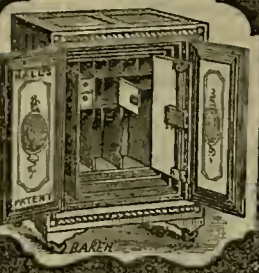
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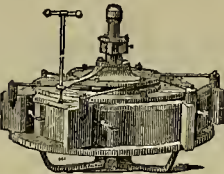
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OF THE Per cent. of Power guaranteed  
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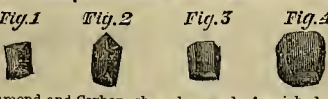
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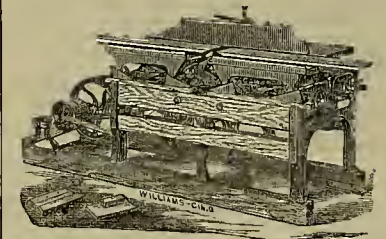
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Sunday	except d	Daily.	except d
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.
5:30 P.M.	7:30 A.M.	San Jose	5:30 P.M.
7:35 P.M.	12:21 P.M.	Stockton	1:28 P.M.
9:35 P.M.	2:10 P.M.	Sacramento	11:46 A.M.
	4:10 P.M.	Marysville	9:10 A.M.
	7:50 P.M.	Sesma	5:40 A.M.
	2:30 P.M.	Sacramento	11:45 A.M.
	5:25 P.M.	Colfax	8:45 A.M.
	1:15 A.M.	Reno	1:00 A.M.
	9:10 A.M.	Winnemucca	4:05 P.M.
	12:00 M.	Battle Mountain	1:25 P.M.
	4:40 P.M.	Elko	8:55 A.M.
	6:20 A.M.	Orden	5:20 P.M.

**SAN JOSE BRANCH.**—Leave San Francisco at 9:10 a.  
m. daily (except Sundays), and 3 p. m. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:30 p. m., daily  
(except Sundays).

**OAKLAND BRANCH.**—Leave San Francisco. \*6:50,  
8:00, 9:10, 10:20 and 11:10 a. m. 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
Leave Brockton. \*5:15, \*6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.

**ALAMEDA BRANCH.**—Leave San Francisco, 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruit Vale only).  
Leave Fruit Vale. \*4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
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[Continued from page 121.]

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If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction. Please notify us if you are not properly credited within two weeks after paying.

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To accomplish this we have concluded to print (perhaps weekly) during the Fair season, many extra papers as fair sample copies of the PRESS for gratuitous and judicious circulation amongst the very best class of citizens—i. e., the steady, industrial, intelligent and producing population. By this liberal means our regular circulation will be greatly extended, and the different individuals who will receive and critically examine the paper and its entire contents will aggregate an immense number during the next three months.

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A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$67.50. Part of the money may be paid in installments by a person who gives good recommendations—in the city, or in the country near San Francisco. To be seen at John I. Tay's, Broadway, Oakland. apl-bp-1f

**MARAVILLA COCOA**.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoes, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. fcz-ly

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

\$5 TO \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 16 Dearborn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING MACHINE, against any other, may apply to No. 284 Bowery, 157 E. 26th, 477 9th Ave., New York. Good work at high prices if desired. 21v1-12mbp

#### Special to Inventors.

All inventors who secure valuable patents through the SCIENTIFIC PRESS PATENT AGENCY are specially favored with a liberal notice of the merits of their inventions in the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS—two first-class weeklies, the most widely circulated of any on this coast, reaching the very best classes for the benefit of our ingenious citizens. In many cases we know that such notices have been worth more to patentees than the whole cost of obtaining patents. While we give the most able and experienced counsel to inventors, our terms are more favorable to Pacific Coast inventors than those of any other Agency in the United States, besides the benefit derived from having their inventions set forth rightly in the start by gratuitous publication in more than one highly reputable journal.

#### Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post at.]

SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.

City Tanned Leather, 3 lb.	26@30
Santa Cruz Leather, 3 lb.	26@30
Country Leather, 3 lb.	25@28
Leading French stocks have declined slightly. California kips are higher and in demand.	
Jodot, 8 Kil., per doz.	\$50 00@
Jodot, 11 to 15 Kil., per doz.	82 00@ 95 00
Jodot, second choice, 11 to 15 Kil. 3 doz.	82 00@ 88 00
Lemoine, 16 to 19 Kil., 3 doz.	96 00@
Levin, 12 and 13 Kil., per doz.	68 00@ 70 00
Corneillon, 16 Kil., per doz.	73 00@
Corneillon, 12 to 14 Kil., per doz.	68 00@ 70 00
Ogeran Calf, 3 doz.	54 00@
Merier Calf, 16 Kil., per doz.	65 00@
Robert Calf, 7 and 8 Kil., 3 doz.	35 00@ 40 00
Common French Calf Skins, 3 doz.	35 00@ 75 00
French Kips, 3 lb.	1 00@ 1 30
California Kip, 3 doz.	60 00@ 75 00
Eastern Wheel Stuffed Calf, 3 lb.	8 00@ 1 25
Eastern Bench Stuffed Calf, 3 lb.	1 10@ 1 25
Eastern Calf for Backs, 3 lb.	1 15@ 1 25
Sheep Roams for Topping, all colors, 3 doz.	8 00@ 13 00
Sheep Roams for Linings, 3 doz.	5 00@ 10 50
California Ensett Sheep Linings, 3 doz.	1 75@ 5 50
Best Jodot Calf Boot Legs, 3 pair.	5 25
Good French Calf Boot Legs, 3 pair.	4 50@ 5 00
French Calf Boot Legs, 3 pair.	4 00
Harness Leather, 3 lb.	30@ 37 1/2
Rail Bridge Leather, 3 doz.	48 00@ 72 00
Skinning Leather, 3 lb.	24@ 37 1/2
Wet Leather, 3 doz.	30 00@ 50 00
Buff Leather, 3 foot.	17@ 21
Wax Side Leather, 3 foot.	18@ 29

#### CAUTION.

#### BETT'S CAPSULE PATENTS

are being infringed by importation of Capsules made in our right, which are not genuine. BETT'S being the original inventor and Sole Maker in the United Kingdom.

1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

#### WALTHAM WATCHES.

In soliciting anew the public patronage of WATCHES of domestic production, the AMERICAN WATCH COMPANY respectfully represent:

That no fact in the history of manufactures is more completely demonstrated than that the best system of making Watches is the one first established by them at Waltham. That system always had the warrant of reason and common sense, and now the test of time in the trial of the Watches themselves cannot be denied to have been ample and satisfactory. It is admitted on every hand—the evidence of daily observation and common reputation—that the Watches not only keep correct time, but that as machines they ENDURE. It should seem that nothing more is needed, but that their size, shapes and appearance should suit the tastes of the people. As to all these conditions, the American Watch Co. are now fully prepared to answer the exactions of the market. They confidently assert there is no longer any need for such reasons to import watches of any description whatever. Every size in ordinary demand, every shape and every variety of finish and decoration, may now be had. And as to price, the recent reductions leave no room for doubt that the Waltham system of Watch-making is

#### The Most Economical as well as the Most Reliable,

And that the Waltham Watch is the Cheapest as well as the Best.

Many new varieties of movements have been added during the last year, all of which display the Latest Improvements in design and finish, and evince the rapid progress the Company is making toward perfection in the art. Among these the new small size Watch, for Boys and young gentlemen, is to be specially noted. A very low price has been made for this Watch because it is a boy's watch, and with the object of bringing it within the means of boys of all classes. Price being considered,

#### No such Watch, in Quality and Beauty,

Has over, in any country, been produced.

The "CRESCENT-STREET" FULL PLATE WATCH, added during the last year, is now made either with or without stem-winding and setting attachment. This Watch, in either form,

#### The Company Challenges all Manufacturers of all Countries

To beat or equal for its price. It is made with all the latest improvements in every part—improvements which improve—and which not only make it better for its purposes as a timekeeper, but will make it the great favorite with Watchmakers. This, the highest grade of full plate Watches made in this country, in size and appearance, in finish, and general excellence, is especially intended for and recommended to business men, and in particular to Railway and Expressmen, to constant travelers—in fact, to all live men who must be told by their Watches the correct time of day whenever they want it. All such men should have the

"American Watch Co., Crescent Street."

Counting on such destination for this variety of their manufacture, the company devote the greatest care to its construction, employ upon it only their best men and best machinery, and issue it with their reputation at stake upon its success.

For sale by all leading jewelers. No Watches retailed by the Company. For all other facts address

ROBBINS & APPLETON,

General Agents for American Watch Company, No. 1 Bond street, New York.



Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

**I. X. L. Gold and Silver Mining Company.**  
Location of works, Silver Mountain District, Alpine County, Cal.  
Notice.—The annual meeting of stockholders of the I. X. L. Gold and Silver Mining Company, for the purpose of electing Trustees for the ensuing year, will be held at the office of the Company, Pioneer Hall, 408 Montgomery street, San Francisco, California, at 2 o'clock, P. M., Thursday, Sept. 14, 1871.  
J. CROWNSHIELD, Secretary.

**Jeinsen Lubricator Company—Notice** is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 1st day of August, 1871, an assessment of Fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 425 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 15th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 24th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.  
By order of the Board of Trustees.  
CALEB T. FAY, Secretary.  
Office, Room No. 7, No. 425 California street. au12

**Kincaid Flat Mining Company—Location** of works, Tuolumne County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 4th day of August, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 15th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
R. H. CORNELL, Secretary.  
Office, 220 Clay street, San Francisco. au12-4w

**Mina Rica Mining Company—Location** of works, Auburn District, Placer County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of August, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, No. 415 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 15th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 24th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
R. H. CORNELL, Secretary.  
Office, Room No. 2, third floor, No. 415 California street, San Francisco, California. au12-5w

**Nevada Land and Mining Company—Location** of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko County, State of Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of July, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 24th day of August, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 24th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California. ju125-5w

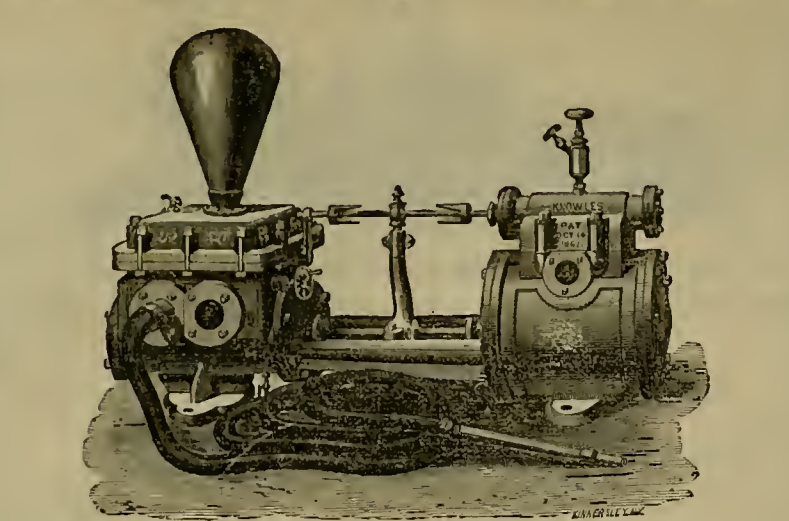
**North America Consolidated Mining Company—Location** of works, White Pine Mining District, County of White Pine, State of Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 5th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 30th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. aug6d

**Ophir Copper, Silver and Gold Mining Company—Location** of works, Ophir, Placer County, Cal.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 2d day of August, 1871, an assessment of five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the company's office, No. 415 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 25th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
R. G. BRUSH, Secretary.  
Office, 314 California street, San Francisco. au12-4w

**Quail Hill Mining and Water Company—Location** of works, Quail Hill, Calaveras county, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of August, 1871, an assessment of twenty dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 25th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 16th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. CRONISE, Secretary.  
Office, 409 California street (up stairs), San Francisco, California. au26-4w

**St. Patrick Gold Mining Company.—Location** of works, Ophir District, Placer County, Cal.  
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of August 1871, an assessment of five (5) dollars per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 20th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 16th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. CRONISE, Secretary.  
Office: 409 California street, (up stairs) San Francisco, Cal.

KNOWLES' PATENT STEAM PUMP.



It has no Crank or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.  
The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.  
The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.  
The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purpose, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, }  
SACRAMENTO, CAL., April 14, 1871.  
A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.  
Yours truly,  
A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., }  
PORTLAND, OREGON, April 22, 1871.  
Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.  
Yours respectfully,  
G. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.  
Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.  
Yours very truly,  
C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.  
Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.  
Yours very truly  
GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, NEW YORK, June 3, 1871.  
Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.  
Yours very respectfully,  
WM. W. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDAYPA, Pa., June 1, 1871.  
Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.  
Respectfully yours, etc.,  
EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., }  
HELLERSBURG, Northampton County, Pa., May 26, 1871.  
Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We have bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severest tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.  
Yours very respectfully,  
G. W. WHITTAKER, President and Superintendent.

OFFICE OF NEW HAVEN WATER CO., Dec. 13, 1869.  
Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.  
Yours very truly,  
P. SAULT, Superintendent.

CENTRAL AND WESTERN PACIFIC AND CAL. AND OREGON RAILROADS, }  
OFFICE Supt. W. M. P. & M., SACRAMENTO, CAL., July 8, 1870.  
A. L. FISH, Esq., San Francisco—Dear Sir: Your favor of the 2d inst. is received, asking my opinion in regard to the Knowles Steam Pump, and would say I have used the Knowles Steam Pump for several years, and consider them for all purposes the best steam pump in use. Yours truly, E. F. PERKINS, Supt. M. P. & M.

OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.  
A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to all you have claimed for them, and I will add that I think they have no equal. Yours, etc., JOHN O'LEMMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND  
THE LARGEST STOCK OF PUMPS IN THE WORLD,  
And for Every Conceivable Purpose.  
A. L. FISH, Agent.  
No 9 First Street, San Francisco, Cal.  
P. S.—All kinds of new and second-hand Machines on hand. 24v22-cow

**Tecumseh Gold, Silver and Copper Mining Company—Location** of Works, Gopher District, Calaveras county, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 28th day of July, 1871, an assessment of five dollars (\$5) per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. HERMA, at the office of the company, 316 Kearny street. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 24th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
F. J. HERMA, Secretary.  
Office, 316 Kearny street, San Francisco. aug5d

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MANUFACTURERS OF  
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**Mining, and**  
**Sporting Powder,**  
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Tarrant's Seltzer Aperient  
Is of its original, the Seltzer Spring of Germany. The Aperient, based on a correct analysis of the Seltzer Water, is even superior to the manufacture of Nature herself, because it contains all the active medicinal properties of the spring, unalloyed by any of the inert and useless particles found in all mineral fountains. THE GENUINE ARTICLE BEING SECURED, you have the Seltzer Water of Europe, purified and perfected, and probably the best, the most genial cathartic and antilithic preparation on the face of the earth.  
SOLD BY ALL DRUGGISTS.



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SAFEST OIL KNOWN.  
Will Not Explode! Stands a fire test over 15° Fahrenheit. We take ordinary Kerosene 110° fire test, and re-distill it by our new process, rejecting fully 1/2 (Benzine and Tar), the cause of all Kerosene explosions, bad odors, smoke, gas, etc. Our "SAFETY" Oil costs 1/2 cent per hour, and a lighted lamp may be used and broken without fear of explosion or fire. The Fire Underwriters of N. Y. recommend its use as a protection to life and property. For sale by all grocers, druggists, etc., in the U. S. Extra inducement to dealers. Address DENSLOW & BUSH, 130 Maiden Lane, N. Y. 8 Custom H. street, Boston, Mass.; 34 S. Calvert street, Baltimore, Md.; 51 S. Water street, Chicago, Ill.; or Cleveland, Ohio. P. B. 5-gallons expressed for \$3 to any place where not for sale. 8-v21st

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SAN FRANCISCO.  
**Repairs and Tunes**  
ALL KINDS OF  
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Special attention given to PIANOS, ORGANS, or MELODIANS.  
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NEW IMPROVED FAMILY  
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John N. Risdon.

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JOSEPH MOORE.....Vice President and Superintendent.  
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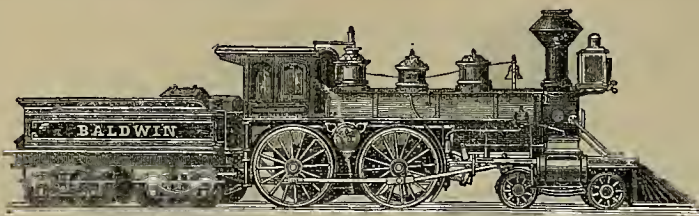
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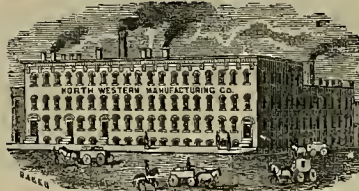
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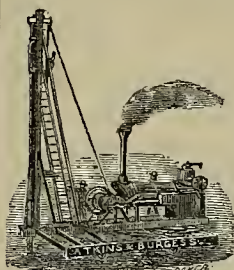
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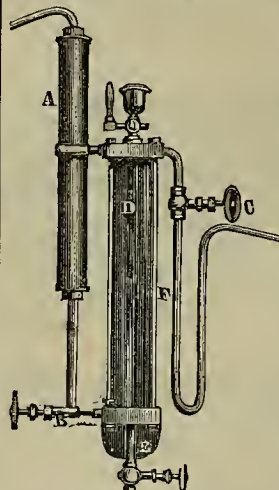
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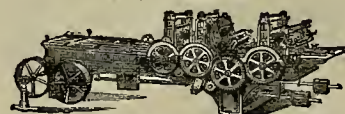


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DESCRIPTION:—D is a glass chamber which contains the lubricant. C is a valve, connecting with cup which introduces the lubricant into chamber D. F is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the ejection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. fel3-tf

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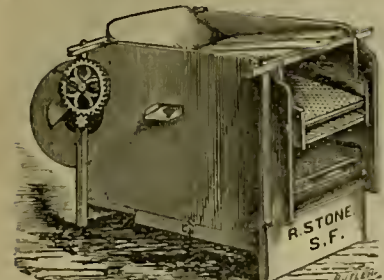
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THE PATENT

Novelty Mill and Grain Separator



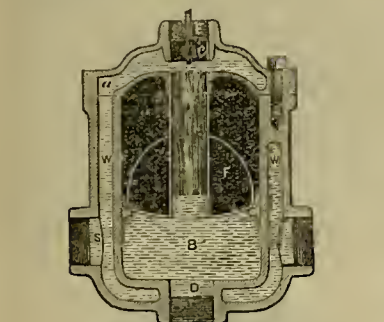
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**CRAIG & BREVOORT'S**  
Patent Condenser for Steam  
PUMPS, &c.

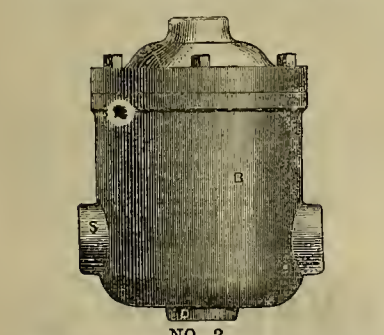


The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached.

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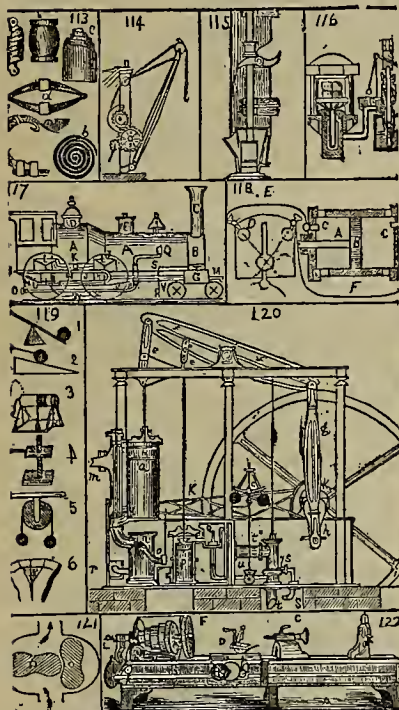


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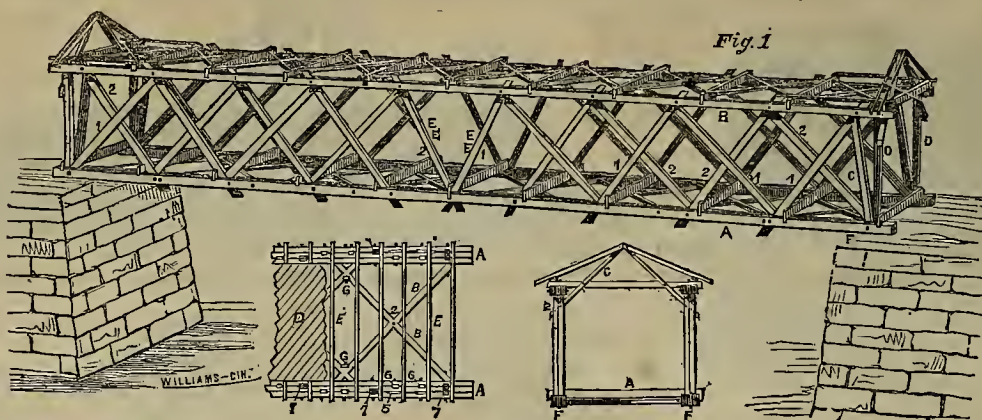
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SAN FRANCISCO, SATURDAY, SEPTEMBER 2, 1871.

VOLUME XXIII.  
Number 9.

## Brown's Vapor Burner.

From the number and various styles of vapor burners offered to the public, each one of which is pronounced unsurpassed and unsurpassable, one would naturally think that the time was not far distant when novelties would cease in this line of invention. But like all other articles of utility, the vapor burner has steadily received valuable additions and improvements, which have caused it to become a great household favorite.

The latest improvement in these burners with which we are acquainted, is the one invented by C. B. Brown, of Placerville, El Dorado county, this State, and recently patented through the agency of this office, an illustration of which is given below, attached to a vapor lamp.

In this class of lamps, the gas which is burned is generated in the burner tube, from the oil which flows downward from the oil vessel. This tube is usually packed with cotton, which conveys the oil by capillary attraction to the burner. Instead of cotton, Mr. Brown uses asbestos, a filmy, fibrous mineral which is inde-



BROWN'S VAPOR BURNER.

structible by heat, and which serves the purpose of raising the oil equally as well as cotton. In the upper end of the tube is an inverted conical plug, the upper end of which is hollow, and small holes in the plug serve for the escape of the gas to the reservoir, from which it passes through holes in the upper cap to be burned. A screw passes down through the top of the cap which covers the upper end of the tube, by which the supply of gas to the flame can be regulated. This burner gives a beautiful, steady light of great brilliancy, and will be appreciated by persons employing this class of lamps.

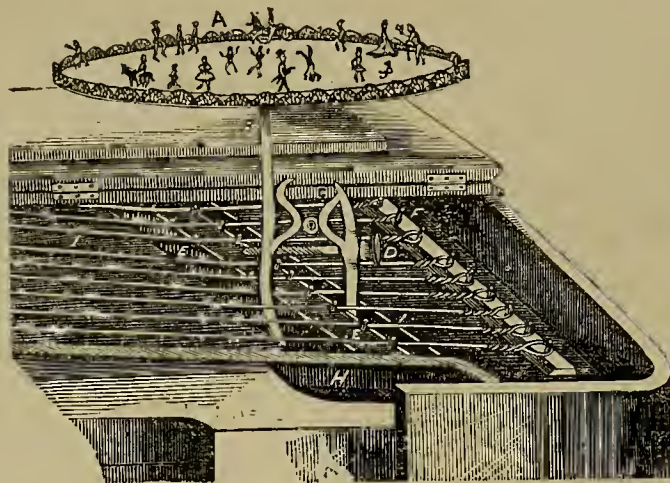
This burner is on exhibition at the Pavilion. All communications concerning it should be addressed to C. B. Brown, Placerville, Cal.

To show the importance of the movement of European capitalists to our mines, we are at liberty to state the fact that one party alone from London has recently spent \$4,000 for cable dispatches concerning the purchase of mines in this country.

## Musical Dancing Toy for Pianos.

The accompanying engraving is a perspective view of a new scientific toy invented by G. L. Wild & Bro., of Washington, D. C. Its operation depends entirely on the vibration derived from the sounding-board of a piano, to which it can be attached, and is a simple and very amusing

spring. The vibration of the sounding-board is communicated through the stand to the table, where it is spread out in increased force, causing the figures, through their elastic supports, to spring about in a most comical way. It is evident that a great deal of fun may be elicited therefrom; and there is something so natural and life-like in the grotesque groupings and comical motions of the figures, that it not only



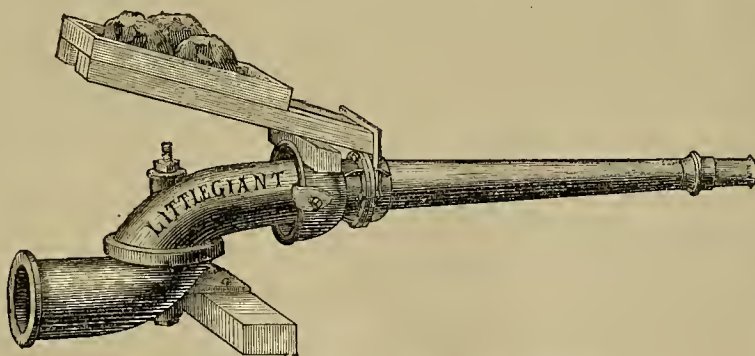
WILD'S MUSICAL DANCING TOY FOR PIANOS.

little toy. It is principally a light, round table with a fancy gilt or lace trimming around the upper edge, with a screw clamp for attaching it to the sounding-board of the piano, which can easily be done without injuring the instrument. In reference to the cut, A is the table, B the stand, C

amuses the little ones, but grown people as well. For particulars as to price, patent rights, agencies, etc., see advertisement in another column.

## Hydraulic Joint and Discharge Pipe.

Hydraulic mining since its discovery,



HOSKIN'S IMPROVED HYDRAULIC JOINT AND DISCHARGE PIPE.

and D forming the clamp. When it is to be applied, the stand is screwed to the bottom of the table, and the lower end is adjusted by turning the screw, D, of the clamp, which fastens it to the sounding-board, E E. Then a number of small figures or images are placed on the table, and, on performing on the instrument, the figures appear charmed into life and motion by the music. The effect is very pretty, and no complicated mechanism is required to produce it. The figures are made of wood, and dressed to represent a variety of characters and nationalities; the arms, legs and heads are movable, and they are supported on stiff bristles or steel wire

less than 20 years ago, has been constantly improved in its method and appliances. One of the greatest steps in its progress has been the transition from the use of canvas hose and small discharge pipes, held in the hands of the single operator, (in a manner similar to the nozzle of a common fire hose), to the use of iron pipes of large calibre. Those are connected with immense sized discharge pipes, having universal joints curiously and ingeniously balanced so that the stream may be directed at pleasure by the simple pressure of the hand.

It is one of these latter machines that we present in our illustration to day, invented

and patented through this office by Richard Hoskin, of Dutch Flat, a practical miner and mechanic. The lower joint is for the horizontal turning of the nozzle, and the forward joint for its vertical movement. The box shown is weighted with stones sufficient to balance the discharge pipe, and render the turning easy.

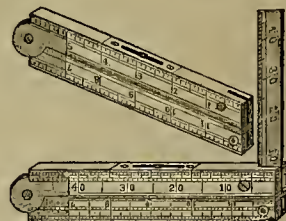
One of the superior features of this joint is the reduction of the "sticking angle of the water" in its passage of the joint by its peculiar design shown in the cut.

Mr. Hoskin's apparatus, now exhibited at the Mechanics' Institute Fair, consists of a pipe nearly 8 feet long, with a joint 11 inches in diameter. The discharge pipe is calculated for nozzles carrying a stream 6 inches and less. As may be seen, its nozzle can be moved in any direction by the pressure of a finger.

The power of each individual inch of water is greatly augmented, where used in a massive stream under a high pressure, as practice proves. The hanks of our hydraulic diggings are pulverized and disintegrated by this new method of hydraulicing with so much greater economy over the old system, that many claims are now worked with profit that formerly run their owners in debt for water bills.

## Stephens' Patent Combination Rule.

The accompanying cut represents this useful and handy little tool which will be found convenient for people of almost any



STEPHENS' COMBINATION RULE.

trade or profession. It is made of box wood and bound very heavily with brass, and looks as if it would last a lifetime. It has only one joint, and being a foot rule, is six inches long when closed. The cut represents it in three positions. First—a spirit level; second—a try-square and plumb; and third—a clinometer or slope level, which is marked on the steel blade that folds into the rule itself. This is graduated, noting the degrees of the angles that are formed by opening the legs of the rule—the blade sliding through the groove in the end of the leg. When extended to 45°, of course the angle is 45°, the blade has fallen 27½° from a right angle or square. The glass, covering the spirit level, can be removed by means of screws so as to be adjusted in case of irregularity. This little tool embraces in itself a carpenter's rule, spirit level, square, plumb, bevel, indicator, brace scale, protractor, a right-angled triangle, and with a straight edge can be used as a parallel rule. It is the convenience of tools like this that lightens labor and spares endless calculation and measurement. Inventors can often do more good to humanity by perfecting some useful little invention like this, than by racking their brains over some mechanical problem which interests only a few. Every farmer as well as mechanic, should be supplied with one of these useful little instruments. Information concerning this beautiful contrivance can be had by addressing Stephens & Co., Riverton, Connecticut.



## SCIENTIFIC PROGRESS.

### The Influence of Coffee and Cocoa.

M. Rabuteau gave an interesting account at a late meeting of the Academy of Sciences in Paris, on the influence of coffee and cocoa on alimentation. Two dogs—we condense from *Comptes Rendus*—were taken, as nearly as possible identical in size and condition, one was fed every day with 20 grammes of bread, 10 grammes of fresh butter, and 10 grammes of sugar; the other with 20 grammes of cocoa, 10 grammes of sugar, and an infusion of 20 grammes of roasted coffee. This last ration it is observed contained less solid matter by weight, than the preceding. The first dog grew very thin in a short time, and died in twenty-nine days, showing all the symptoms of an insufficient nourishment. The other continued healthy, though he grew thin, but not so much as the first dog.

The experimenter having been called away to duty at the fortifications just after the first dog died, he was unable to feed the second as he had purposed, and the animal not receiving any nourishment died at the end of four days.

M. Rabuteau thinks that coffee should not be roasted in a covered vessel, as is generally done in large establishments, and in manufactories of ground coffee. He says the roasting should be so accomplished that the coffee shall contain all the caffeine, the true active principle of the berry, and should not contain caffeine, an essential oil developed in roasting. This latter principle the author asserts is one which excites and causes the injurious effects so often found to arise from the use of coffee. Its formation may be to a considerable extent prevented by roasting the coffee in a current of heated air.

A discussion on the subject followed, in which it was questioned whether coffee and cocoa were to be considered as aliments, M. Chevreul expressing his belief that personal idiosyncrasies had much to do with it. He also remarks on the difficulty of settling the question for want of a standard by which to be guided, as for instance the percentage of nitrogen, which, however is fallacious.

### Experimental Researches on the Nutritive Properties of Cocoa.

At the same meeting M. Ch. Gazeau reported upon some experimenting on the nutritive properties of cocoa, which he had made himself. He found that the use of cocoa increased the amount of urea voided, from 11 to 16 per cent. or more, the mean temperature of the body was increased 0.32°, the arterial pulsations from 11 to 22, and the number of respirations from 4 to 6. In the use of cocoa the author believes that the vital powers are really drawn upon so that the benefits derived from its use are more apparent than real.

A discussion on this subject followed, in which the extensive use of the cocoa by South American Indians was referred to.

**EFFECTS OF DIFFERENTLY COLORED RAYS ON DEVELOPMENT.**—Some interesting experiments have recently been made, from which it has been ascertained that certain colored rays of light are particularly favorable to the development, in organic infusion, of infusorial life, while other rays are more favorable for the production of microscopic forms of vegetable life. Thus, M. Pouchet says, *white* light is the best fitted for obtaining the former result, after which comes the *red* ray, then the *violet*, the *blue*, and finally the *green* ray. On the contrary, for the development of vegetable "proto-organisms," the *green* ray is the best fitted; next to this the *blue* and *violet* rays; and, lastly, the *white* light; the *red* ray hindering the development of these organisms.

**SORBY ON TINTS OF AUTUMNAL FOLIAGE.** In an elaborate article by Mr. Sorby upon the varied tints of autumnal foliage, in a recent number of the *Quarterly Journal of Science*, he comes to the conclusion that the production of the fine tints of autumn is an evidence of diminished vital powers of the plants. This generalization also agrees with the fact that the unhealthy branches of a tree turn yellow, while the rest remain green, the subsequent development of more sombre tints being evidence of more complete death.

**TRANSIT OF VENUS.**—There will be a transit of Venus across the sun, in 1874, and astronomers are already busy in making arrangements for its careful examination, as by it the distance of the sun from the earth is determined. The last transit of Venus was in 1769.

### Meteoric Stones.

M. St. Meunier, who has made the subject quite a study, gives the following distinguishing characteristics as found in different meteorites:—Some specimens consist of a brecciated mass, like what he calls Lucite from the meteorite of Luce; others consist of a brownish porous mass, called Limerickite, from a meteor which fell near Limerick; and others still present a blackish mass, called by M. St. M., *tadjerite*. The two former have been found blended together, in which cases we think they must have originally belonged to a planet where these two minerals occur in juxtaposition. He has produced the black rock called *tadjerite* artificially, by heating a breccia composed of *amatite* and *chertinite* to fusion. Hence he concludes that *tadjerite* has been a rock of that description, which has been subjected to metamorphic action. *Tadjerite* often occurs as a black covering to the brecciated masses, which he thinks is due to fusion, probably from friction, [in its passage through the atmosphere] and by its depth shows the intensity of the heat to which it has been subjected.

While most meteors appear to have been simply fused and cooled; others show the result of a more complicated geological action. He considers that the Widmanstetter lines on meteoric iron indicate that it is an eruptive mass.

The same author infers, from the analogy of meteorites, that the solidification of the terrestrial globe proceeded from the surface to the center.

**DIRECT CONDENSATION OF WATERY VAPOR.**—Professor Forel, of Lausanne, after long-continued observation, has determined the quantity of water passing the Rhone below the Lake of Geneva, and finds that to furnish this amount it would require an atmospheric precipitation in the above, of nearly 45 inches. The actual precipitation, however, amounts to but 27½ inches; and the question arises, therefore, whence comes the surplus water? Professor Dufour finds its origin in the direct condensation of the atmospheric vapor on the ice, the cold rocks, and the snow-fields of the Alps. The following experiment may serve to elucidate the principle involved: A vessel containing a cooling mixture of 672 grams in weight, on being exposed for an hour in the calm, open air, increased five grams in weight from the vapor condensed on its exterior. Direct measurements at suitable points would be interesting for the purpose of ascertaining approximately what quantity of water is thus actually carried to the river.

**SUDDEN AND SPONTANEOUS OPACITY OF GAS CONTAINED IN A BALLOON.**—Observations having frequently been made by aeronauts, says *Les Mondes*, that when the gas is allowed to escape from balloons when in an elevated position, it appears like a whitish smoke, whence aeronauts coined the expression of "the balloon smoking the pipe." M. de Fonvielle explains this as the result of cold which arises from the increase in volume of the balloon in a rarefied atmosphere. The vapor of water in the gas is thus condensed, and assumes the whitish smoke-like appearance.

**ANOTHER PLANET.**—Prof. Watson of the observatory of the Michigan University, Ann Arbor, says:—"I have discovered in the constellation of Capricorn a planet hitherto unknown. It shines like a star of tenth magnitude. It is situated in the right ascension, three hundred and twenty degrees, sixteen minutes, and in the declination, twelve degrees thirty minutes south. It is moving south and west."

**COMBINED RUBBER AND COPPER WIRE FOR PIPE COUPLINGS.**—Mr. Fred. Kible, of Baltimore, Md., has, says the *Scientific American*, patented an improved joint for water pipes, steam pipes and chests around bolts, etc., whether the joint be round, square, or any other shape. It consists in a rubber plate and copper wire for forming the joint. The plate made of rubber or other suitable material is cut to fit between the faces that form the joint. On this is placed a copper wire bent to fit the hole around which the joint is to be made. The wire should be one size larger than the thickness of the rubber. This construction permits the wire to be arranged as desired so as to avoid flaws in the plates. If desired two rubber plates can be used with the copper wire placed between.

## MECHANICAL PROGRESS.

### Sawing and Seasoning Timber.

"Every builder and lumber dealer has observed that when the heart of a tree is near the center of a hewed or sawed beam, post or sill, the timber is apt to crack badly from the heart outward while the process of seasoning is going on. The decay of the timber is immensely quickened by these cracks, which admit water, and harbor whole swarms of vermin. On the other hand, the timber will never crack while seasoning, if the tree has been sawed through the heart. It often happens a tree from which sills or plates for a barn are to be made is of sufficient size for two or even four pieces, if the logs are sawed through the middle. It will pay handsomely, unless the circumstances are very unfavorable, the road extremely rough and the distance great, to haul a log of such size to the saw mill, where it can be sawed through the heart into two or more pieces as the case may be—thus not only saving largely in amount of timber obtained from the log, but greatly improving its seasoning and working qualities. The difficulty of hauling and sawing a log of unusual length may be overcome by the exercise of a little engineering skill. Supposing a long stick of timber to have been hewed one foot square, it can readily be chained under the axle tree of a lumber wagon and lashing the free ends of the reaches to the timber. The sawing at the mill in the desired manner may be easily accomplished, even though the stick be twice the length of the saw mill carriage, by allowing one end to project beyond the head block."—*Leffel's News.*

**SPLIT VS. SAWED PLANK.**—At an early period, the trunks of trees were split into planks with wedges, and these were afterwards reduced by the operation of the adze. Before the middle of the sixteenth century, all the plank in Norway was hewn in this manner, and trees from which seven or eight boards could now be formed, then only produced two. This simple but wasteful mode has not in some parts of the north, been even yet entirely exploded; and it must be admitted that it is attended with some advantages which the use of the saw does not afford. The work is more expeditiously performed, and split timber is far stronger than that which has been sawn, for the fissure follows the grain of the wood, and leaves it undivided; whereas the saw, by cutting along a specific line, divides the fibres, and thus weakens its cohesion and solidity. Besides, as the fibres retain their natural position, they are easier bent, and this is an advantage in many kinds of work which more than compensate for the timber being sometimes warped.—*Etc.*

**A REVOLVING SAFE.**—Among the articles exhibited in the industrial department of the London International Exhibition just concluded, is something new in the shape of a revolving safe, for which the exhibitor claims the usual requisites of thorough security against thieves and fires. Unlike all other safes this is made in a circular shape, and, when locked and placed in a position either against a wall, or built into it, the door is turned into the wall, the back facing the spectator. To open the safe, a lock is opened in a strong iron box, on which the safe rests. This moves a spring, which enables the operator, by means of a small hand key, to bring the door of the safe round to the front, and causes a bell to ring a loud alarm. The door being opened by means of a key, another door presents itself, which is opened by being moved round to the back of the safe. The invention has been much admired and favorably considered.

**A FRICTIONLESS PEN.**—Sir Wm. Thomson's siphon recorder is the great telegraph novelty of the day. The reading of the signals is effected by means of a siphon, or capillary glass tube, about two inches long, the shorter end of which dips into a dish of ink, while the larger hangs down, in front of a paper strip moved forward by clockwork. The miniature glass siphon is connected, by a very fine aluminum wire, with a coil suspended between the poles of an electro-magnet, and is moved backwards and forwards as it is deflected to the right or the left. To persuade a camel to get through the eye of a needle would, under ordinary circumstances, not be a more difficult feat than to get ink through the capillary tube under ordinary pressure. But it is actually ejected in a tiny stream

from the lower end of the siphon, by the simple and ingenious expedient of keeping the ink electrified to a high tension. It is a well known fact that, when any liquid is electrified, its particles repelling each other, it is enabled to flow through the finest orifice; and this fact, judiciously taken advantage of by Sir William Thomson, has enabled him to produce a frictionless pen point. The electrification of the ink in the reservoir is done by a rotating electrophorus or replenisher, kept in motion by an electro-magnetic machine.

**DRILLING WITH SAND.**—It is said that a jet of quartz sand blown through a pipe by steam, at 30 lbs. pressure to the square inch, will make a hole in a solid block of corundum an inch and a half deep and of the same diameter, in less than 25 minutes. Corundum is little, if at all, inferior in hardness, to the diamond; in comparison, even blued steel is soft, and granite absolutely pulpy. This remarkable mechanical discovery is due to M. B. C. Tilghman, an engineer of Philadelphia, who turns upon corundum a pipe which discharges sifted sand, mixed with a furious squirting of steam, and the fine shower of particles thus flung cuts a hole equal to the diameter of the jet. The same effect is produced in anything else submitted to the process.

So great a force of steam is not necessary for finer work, such as grinding or engraving glass. For this purpose, a blast of air may be employed by means of a rotary fan. The tube is fed with sifted sand, which the air-blast takes up and whirls against the glass. It will thus completely demolish a surface moving past at the rate of five inches in the minute, and the spent sand and sand-dust can be perpetually returned and re-employed. Moreover, by covering parts of the glass with any semi-elastic material, such as paper, lace, caoutchouc, or oil-paint, designs of any sort may be engraved. The particles which eat off the hard glass or stone beat in vain upon the interposed medium, and so curious is this resistance that even a green fern leaf may be used, and the sand-shower will consume all but the parts thus covered, leaving a delicate pattern of the frond. The film of bichromated gelatine used for photographic negatives, may also be thus utilized for producing an engraving on glass or steel; and by a very simple arrangement the jet can be rendered movable, and handled with an absolutely artistic freedom.

**SILICATE OF POTASSA IN STRENGTHENING FOSSIL SKELETONS.**—A very judicious application of the silicate of potassa has been lately made at the Museum of Natural History of Paris, in repairing many fossil skeletons which had been disassembled and broken by the shells bursting in this palace of science.

The solutions have been first used diluted to about 30° Beaumé, and afterwards of a higher degree of concentration. The adhesion of the broken or separated pieces is brought together by applying with a brush, some of the solution of silicate of potassa on the parts to be joined, then they are left to dry, and the joint is hardly visible; and the joined part is far stronger than the remainder of the bone. Very delicate and porous anatomical pieces, as skeletons of birds, insects, etc., can be dipped repeatedly in more diluted solutions, and thus be rendered very hard and tenacious.

**EXTRACTING OIL FROM OIL-CAKE.**—A process apparently designed for extracting the residue of oil from cold pressed oil-cake has lately been brought out in Liverpool, England. The cakes from which the oil is to be extracted are first reduced to pulp in a steam-jacketed kettle, by the solvent action of dry heat, in combination or not, with an acidulated vapor. The pulp is then placed in bags, and is subjected to a graduated pressure. The pulp is then filled into bags and pressed. As soon as the first or virgin oil has flowed, the pressure and heat are increased, and a small amount of free steam is allowed to act on the edges of the bags.—*Artisan.*

**NEW, INGENIOUS AND USEFUL.**—Messrs. Osgood and Co., the eminent publishing firm of Boston, have had a machine built expressly for them, which at one operation trims the main sheet and supplement of their illustrated newspaper, *Every Saturday*, pastes the leaves securely together, and folds them at the rate of 1,800 copies per hour. This ingenious machine, just invented, will mark an era in the publication of large illustrated newspapers.



# CORRESPONDENCE.

## A TRIP THROUGH UTAH TERRITORY.

BY OUR OWN TRAVELER.

### A Visit to the Mines.

We left Salt Lake City at 7 A. M. for Little Cottonwood Cañon. Four and six-horse coaches owned by Chislett & Co. run from Salt Lake to Emmaville and Central City, and the distance to the latter place is 30 miles. Passing to the south we follow the Wasatch range of mountains for about 18 miles and then up what is known as Little Cottonwood Cañon, passing Emma-ville, Granite, and Tannerville on the way, and arrive in the evening at Central City. The road up the Cañon is rough and steep. At the mouth of it we passed the smelting works of J. C. Bateman & Co. where there are two of Blitz's furnaces, 3 feet and 6 inches in diameter with 5 tweeters. The furnaces have a capacity of about 10 tons per day. The fire clay used comes from Camp Floyd in this Territory and answers the purpose required very well. The charcoal used is from Truckee and costs 27 cts. per bushel. A fine water privilege and a Turbine wheel furnish the power to run one of Root's patent "Blowers." They are running night and day on ore from the "Flagstaff mine."

At Granite City the Mormons are quarrying stone for their new temple, though at present but few men are employed.

At Tannerville there is a smelting furnace of 20 tons capacity, owned by Messrs. Jones & Pardee. They are running day and night and are doing well. A new furnace is at present in process of construction.

### Central City and Alta

May be spoken of as one town as they are so close together. The elevation is 8,300 feet, and the population about 600. There are two butcher shops, one hotel, a restaurant, two stores and a few saloons.

This situation, so near what are without doubt some of the richest mines in the United States, will eventually cause the place to become a good camp. The hills are being prospected for chlorides daily, but there is no excitement, and the district has come into notice on its own merits, and I will say that to-day it has one of the largest paying mines in the U. S.

The mountains in the vicinity abound in timber fit for mining purposes. And there is plenty of water running down the canon. On the high mountains near by, the snow lies from 8 to 10 feet deep all the year round, and the roads in winter are almost impassable for teams.

### The Emma Mine.

I was naturally anxious to see this famed Emma mine. I walked up about half a mile from the city on the side of a range dividing Big and Little Cottonwood canon to see it. I had the pleasure of going through it in company with the Supt. We passed up from the office to the large ore shed. The ore is taken from the mine and dumped down the "inclino" to the shed where it is sacked and sent to Salt Lake City. There are six men engaged in filling and six in sewing the sacks, which hold from 85 to 100 lbs. each. The ore is soft and decomposed and like fine dirt or sand. There are 100 two-horse wagons engaged in hauling ore, and I am informed that last month they carried about 95 tons daily, on an average.

This mine was located in 1868 by J. F. Woodman, who sunk a shaft about 125 feet deep before striking any large body of ore. He followed down a small streak of red colored matter, known as *red ochre*, which is considered as a good indication in this district. There have been a few side drifts run north and south from 12 to 16 feet, in one of which they struck it and sunk 65 feet through the solid body of rich ore. They have run a tunnel through the solid formation 405 feet, beginning near the original discovery shaft, and here they struck one of the largest bodies of ore I have ever seen. At the end of the tunnel we find ourselves in a large room or cav-

ern, timbered in a substantial manner, bearing evidences of engineering skill and good workmanship. From the level of the tunnel may be seen 11 floors or galleries, each 71 feet in length, 26 wide and 7 feet in height. From the galleries they are still taking out ore. The timbers used are 10 inches square and 7 feet long and the ties and caps are of equal dimensions, making a solid square framework.

The deposit dips at an angle of 50 degrees to the N. E. and the lode or body of ore runs east and west, and shows, it is said, an open fissure at the eastern end. In this "chimney" to the right and below the tunnel level a shaft has been sunk 93 feet deep. At 60 feet they run another level from which they are now extracting about the same quality of ore as above. They are still sinking this shaft as it seems to be a large deposit and of an unknown length. It is said that nine-tenths of all the ore taken out is sacked for shipment.

There are 45 men employed on each shift, and four carpenters are kept busy preparing timber. The ore, oxide and carbonate of lead, contains a high percentage of silver. It will average from 35 to 40 per cent. of lead, and assays from \$190 to \$200 per ton in silver, with a small proportion of gold, \$3 to \$7. The richness of the ore has increased with the depth and it is easily worked since it requires no blasting. The vein is in limestone formation and the ore averages about \$135 profit, after paying all expenses of mining, hauling, and reduction. The principal purchasers of this ore are Messrs. Bath & Son, Liverpool, Eng., and they send it to the Swansea Smelting Co. for reduction, latterly, however, small parcels have been worked here in the Territory.

The average daily shipment for last month was 112 tons which at \$135 per ton would be \$15,120 per day, and multiplied by 365, gives the wonderful product for a year's run at this rate as \$5,518,800. The owners of this wonderful mine are T. W. Park of N. Y., Jas. M. Day, of Ill., H. H. Baxter, of N. Y., Walker Bros., Salt Lake, Capt. Jas. Smith, Salt Lake, Warren Henry of the First National Bank of Utah, and W. W. Chisholm of Salt Lake City. They claim 3,000 feet on the lode.

### The North Star Mine

Is located a few rods from the old prospect shaft of the "Emma" and is a good mine. I understand that it was taken up in 1865 by Brain & Nichols, though the Discovery shaft was sunk but a few feet. They own two locations on the ledge, the North Star, running N. W., the St. Louis, a southeasterly course. The North Star tunnel is in 110 and the incline 210 feet, the ledge is from three to six feet in width. The ore yields 60 per cent. lead, and about 100 ounces of silver to the ton. It was formerly shipped to England, but is now worked at Robbin's furnace. Mr. D. C. Nichols is superintendent.

### Utah Mine and Tunnel

Is located 800 feet west of the Emma mine. Six men are employed and they are now through the lime rock 100 feet, and hope to strike either a "blind" ledge or one of those that they own, on the bill. R. Y. Anderson of San José, Cal., is superintendent.

### The Little Cottonwood Mining and Tunnel Co.

Are running a tunnel a short distance above the "Emma" on the hill-side; Mr. T. F. Muller is Supt. On this hill, which pitches about 45 degrees, there is a tramway running nearly to the top, and built by M. W. A. Lyon, for the purpose of taking ore from the mines that are up on the "divide." The gauge is 12 inches, and three rails are used. It runs a distance of 1,265 feet, and at the end of it, is situated the

### Savage Mine,

Which was located in June 1870, and is owned by Walker & Bro. and Wall & Co. They have an incline down 100 feet, then a shaft 60 feet, and then another incline 40 feet following the ledge, which dips east, all the way. There are 70 tons of good ore on the dump and a large quantity not sacked up, and on account of the inclemency of the winter, there was no chance to ship it, although they continued taking it out. The ore averages, I have been informed, about \$300 per ton, and that which is first-class will go even higher. There are 15 men at work, for wages from \$2.00 to \$2.50 and \$3.00 per day and board. Work is carried on day and night. The intentions are to tap the ledge by a tunnel 100 feet below the level of the place where the men are now at work.

The average width of the lode is four feet, although in the lower incline it shows itself on all sides. A few feet from the savage is the

### Montezuma,

Another good mine owned by the same company, and taken up in June, 1870. The incline is in 280 feet and the vein is about four feet wide. There are ten men employed. Three hundred tons are on the dumps awaiting shipment to the smelting works. It averages about \$125 per ton. The lode runs N. E., and the ore is carbonate and oxide of lead.

### The Eagle Lode

Is a short distance from the above mine, and is only a few feet on a vein running parallel with the savage and others. The ore looks well. Further up the hill and a few hundred feet west, is the famous

### Flagstaff Mine.

Where there are nearly 200 tons of ore on the dump being sacked for shipment. The superintendent being absent I did not enter the mine, but it is said by all to be first-rate, and equal to the Savage. Climbing the hill and passing along the ridge of the "divide" we arrive at the

### Davenport Mine.

The shaft is 25 feet deep and then comes an incline of 60 feet all in ore that will average, by smelting process, I am told, \$150 per ton. The character of ore is gray and red carbonate, and oxide of lead. The Center Mining Company, S. W. Howland, Pres., is located near the Emma, on the east side, and they have sunk a shaft about 35 feet deep. Incorporated June, 1871.

The end of the Big Cottonwood Canon is known as "Silver Fork" and among the principal mines are the "Prince of Wales," and the "Highland Chief," the "Reed & Brown" is also a good mine, and is considered a true fissure vein.

The Utah Southern R. R. is now being extended along the foot of these mountains, and a branch track is expected to reach to the mouth of the canon. This will greatly facilitate transportation and materially decrease the number of teams which now crowd the roads. With the advantages possessed by this camp in its undoubtedly rich mines, abundance of wood and water, accessibility, and facilities for transportation, we can safely predict for it a brilliant future.

## Boiler Explosions.—Prevention Better than Cure.

EDITORS PRESS:—As the subject of boiler explosions is being much agitated at the present time, and a great deal is being said about the competence of engineers, I think that if a law was passed with the following for its substance, it would go a great way toward relieving the minds of those who travel or risk their lives with steam in any of its applications.

I would have the law formed, making it a crime, punishable by a heavy fine, for any person to employ a man as engineer who cannot show a proper certificate or other proof of his ability to take proper care of the boiler entrusted to his charge, and should also make it as much an offense for any person to hire out for such a position, unless he could comply with the same requirements. If this was only carried out I think we should hear less often of explosions, and should, indirectly, encourage competency in the engineering profession. As it is, a person who has faithfully served his time and studied diligently in order to fit himself for the position of a practical engineer, has little chance of finding employment at remunerative rates, when people who are too mean to pay a decent price can hire a "shovel engineer" or mere machinists to do the work for what an engineer would be unwilling to give his services for.

I would commend the above to the attention of our prospective law-makers, and think such a bill would find many advocates in all classes of society.

H. M. CALDWELL.

### The San Diego Mines.

Our correspondent "Quartz" writes from Julian District substantially as follows: Mining matters are improving in this section of country. The mine owned by the Bailey Bros. looks better than ever; the ledge is wide and the rock is excellent. The facilities for working this claim are great, being on the side of a steep hill so that they can run in on the ledge, which they have done in three places. The creek has been tapped and a fine stream of water brought around in a ditch at a

salient light to give them plenty of fall and power for the 5-stamp battery which they intend to put up. This ledge "crops out" for a long distance and the ore contains a large proportion of silver in addition to free gold. On the Redman Mine, the shaft has been sunk 68 feet, where the ledge is 6 feet wide. The ore yields from \$40 to \$50 per ton.

The Golden Chariot looks better than ever, is 9 feet wide, with rock showing abundance of free gold.

The Kentuck company is still sinking a shaft, now 48 feet deep. The last crushing yielded \$76. The Madden ledge is 18 inches wide and shaft down 55 feet, the last crushing yielded at McMechans mill \$63.15 per ton.

The Antelope company are taking out about three tons per day, which varies all the way from \$25 to \$75 per ton. Mr. Tierman's improvements in the McMechan mill are a success, and it is thought that by his system of working, the mines will pay much better than heretofore.

### Bull Run, Nevada.

A correspondent writing over the signature "Miner" gives us the following from that section.

There has been a considerable amount of ore shipped from here to Mountain City for reduction. At the Advance mill the demand for working has been so great that Mr. Davis, the Superintendent, has concluded that he will only work 15 tons for each party applying.

THE BLUE JACKET has just had 15 tons put through, which yielded satisfactorily. There are six men at work sinking, and 15 tons are taken out daily. The "Found Treasure," "Highland," "Tiger," and several other companies have shipped small lots, but the means of transportation are insufficient for the amounts, there being only one pack train, which occupies three days in the trip to Mountain City, and carries but four tons each time. Of the other mines the "Porter" Co. are working 10 men and the "Ontario" and "Tiger" companies are sinking on their ledges, the latter employing all the men that can be had.

THE LADY DON company are running a tunnel on their ledge which "crops out" for a distance of 500 feet and shows an abundance of ore. There is a great demand here for a smelting furnace, there being large quantities of galena ore which will average from 30 to 70 per cent. in lead, and will go from \$50 to \$200 per ton in silver, and it is thought that 1,000 tons of this ore could readily be procured from the different dumps alone. There are large quantities of ore here which are altogether too base to be worked by any mill process. The mines were never in better condition than at the present time.

LOWER CALIFORNIA FARMING AND MANUFACTURING Co.—Another Lower California company has been organized under the above name which, however, disclaims all connection with the Magdalena Bay project; it being some 200 miles distant from the locality of the moss gatherers, and on the opposite side of the peninsula.

According to the certificate of incorporation, the capital stock is \$48,000, and the company claims 42,000 acres of valley land on the gulf coast of Lower California under titles confirmed by the highest Judicial Court of Mexico. The objects of the company are to restore the ancient aqueducts at the Magdalena Mission and introduce the water for manufacturing and irrigating purposes and to cultivate the land so as to raise sugar cane, cotton, coffee, tobacco, grapes, and the varied products grown in a semi-tropical climate. They propose also to furnish sufficient water power, not only for their own use, but for renting out the power to capitalists who may desire to establish ore reduction works, plaster of paris or cement factories, the material for which is on the spot.

We understand that one of the evidences of the fertility of the soil is the ruins of the old aqueducts which it is proposed to restore, and the fact that a Jesuit mission, usually selected with care as to facilities for cultivation, formerly existed there.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

GLONE.—Monitor *Miner*, Aug. 19th: A new vein of rich black copper ore was struck in this mine early in the week, from which much is expected. A large body will evidently be found where the two veins come together below.

EXTENSIVE preparations are going on at the lower end of Main street in grading out and walling up the creek, and we hear that a large quartz mill is at once to go up; 25 to 50 men are at work. In regard to the mill we do not deem the information very reliable.

### CALAVERAS COUNTY.

WHAT CHEER.—Calaveras *Chronicle*, Aug. 26th: The incline is nearly shoved down to the channel. Gravel has been struck and it contains gold.

A CHUCK.—\$6,000, retorted gold, were cleaned up at the Paloma this week—the result of 8 days, crushing with 16 stamps.

### LAKE COUNTY.

KNOXVILLE.—Lower Lake *Bulletin*, Aug. 19th: At the Redington mine about 150 men are employed. They are getting out a very good lot of ore.

### LOS ANGELES COUNTY.

BULLION.—Los Angeles *News*, Aug. 26th: 310 bars of lead bullion were received yesterday from the Union works Cerro Gordo. As also 585 bars weighing in the aggregate 48,697 lbs. from same place.

ASSAYER'S RETURNS.—210 pounds of ore from the Winnemucca mine Clark Dist., assayed at the rate of \$874.96 per ton in silver.

SAN GABRIEL CANON.—Several months ago a company was formed with a view to placer mining in the canon. About \$2,000 was spent and operations commenced on the old plan of ground-sluicing. The first clean-up, from an area between 30 and 40 ft. square, yielding \$250. Since that time the mine has continued to increase in value, and now the company is about to put into use improved hydraulic machinery.

LOS ANGELES, Aug. 29th: A party of prospectors left to-day for Arizona. Rumors prevail of silver lodes being found in the mountains north of the city.

### MARIPOSA COUNTY.

ACCIDENT.—Mariposa *Gazette*, Aug. 25th: A miner named G. Powell was blown up in the "Oakes & Reese" quartz mine, Hunter's Valley, on Tuesday. The blast exploded before he could get away, and one piece of rock struck him in the side, causing the worst cut he received.

DORSEY MINE situated about 2 miles southeast of Hornitos, has been sold for \$12,800. There are about 400 tons of rock taken out that will average \$46 per ton which was sold with the mine. The vein is 3 ft. wide and of solid sulphurets.

JERSEY QUARTZ VEIN No. 1, is producing good rock. They have a vein 5 feet thick and the rock will average \$45 per ton. There is a good deal of sulphurets in the vein which will pay \$200 per ton. No. 2 looks well, and from prospects will pay a good dividend to its owner.

SPRING LEDGE.—There was a party of capitalists here to look at the vein with a view of purchasing. The prospects are that they will purchase.

### NEVADA COUNTY.

MINING LOCATION.—Nevada *Transcript*; G. Miller, A. Dolt, F. W. Smith and others have filed a notice, locating a quartz claim in Grass Valley township, it being an extension of 800 feet on the Grand Ledge, under the name of the Wolverine Co.

DAISY HILL MINE.—Grass Valley *Union*, Aug. 29th: A crushing of 26 loads has just been cleaned up and gave \$37.50 to the load of a total in coin value of \$975.

PROSPECTORS.—Several Rough & Ready miners left that place for Trinity county on a prospecting tour. The party intended locating claims and surveying and cutting ditches to bring in water, which they will probably accomplish in time to get at work the coming season.

### PLACER COUNTY.

RISEING SUN MINE.—Grass Valley *Union*, Aug. 29th: Last Saturday one pan was cleaned up, after a run of five days with stamps. The yield was \$2,240.

### PLUMAS COUNTY.

NEW MILL.—Quincy *National*, Aug. 19th: A quartz mill of a capacity of 24 stamps, will shortly be put on the Cahalan ledge located on the hill between Crescent mills and Cherokee. The ledge is a fine one,

and the mill will undoubtedly be a paying institution.

WILL START UP.—The Crescent mill will commence crushing again in a short time.

### SAN BERNARDINO COUNTY.

By telegraph. On Friday, last week, a cloud burst in the mountains near the Temescal tin mines, San Bernardino county filling the shaft and all the gulches with water. No material damage was done.

### SIERRA COUNTY.

TWENTY-FIVE OUNCE.—Downieville *Messenger*, Aug. 26: A miner working in Ladies' canon recently found a 25-ounce nugget of gold.

### SISKIYOU COUNTY.

SLICES ROBBED.—Yreka *Journal*, Aug. 26: Romine & Co.'s sluice boxes on Humbug, were robbed Friday night, a week ago, by Chinamen.

FOR HUMBUG.—A party of gentlemen arrived in town Monday last, for the purpose of visiting the Siskiyou Co.'s quartz ledge on Humbug, and to examine it thoroughly and satisfy themselves that it will pay to bring up their mill.

### SAN DIEGO COUNTY.

We learn that the quartz mines in San Diego county are steadily improving, and experienced men venture to predict that the yield next year will not be less than \$500,000.

### TULARE COUNTY.

Considerable excitement is being occasioned by the discovery of rich quartz throughout the foothills east of town. The mountains are being thoroughly prospected and many claims located.

## Nevada.

### EUREKA DISTRICT.

BULLION SHIPPED.—Austin *Reveille*, Aug. 24th: The Manhattan Co. shipped this morning 15 bars, averaging over 100 pounds each.

AMALGAM.—4,200 pounds of amalgam were retorted at the Manhattan mill yesterday in 12 hours.

NEW ORE CHAMBER.—Eureka *Sentinel*, Aug. 20th: Day before yesterday the workmen in the Buckeye mine of the consolidated Co., struck a new ore chamber north of the north shaft, that is very rich. It is 3 ft. in width and already uncovered a distance of 30 ft. Several assays show \$130 in gold to the ton.

STRIKE IN THE CONSOLIDATED.—Same, Aug. 23d: This afternoon, ore was struck in the bottom of the main shaft of the Buckeye. This shaft has a depth of 160 ft., and cut in its progress three distinct strata of rich lead, gold and silver bearing ore. The extent of this strike cannot yet be determined.

STRIKE IN THE BULLWHACKER.—Yesterday the workmen found a "streak" running through the main body of ore, about six inches wide, and assaying \$2,000 per ton. It shows indication of continuance.

CHAMPION MINE AT DIAMOND.—There is a body of ore of great value, and large quantity in the shaft at 100 ft. deep, and the tunnel is also in good ore. Exploration is going on with good results. The owners intend to erect a furnace.

### ELY DISTRICT.

BULLION SHIPPED.—Pioche *Record*, Aug. 26th: W. F. & Co. shipped since our last issue, bullion valued at \$49,308.91, and (same paper Aug. 26th,) for 4 days ending Aug. 24th \$57,921.24.

SIX DAYS' RUN.—For six days ending Saturday last, the Raymond & Ely Mill, at Bullionville, produced bullion valued at \$25,674.98. The mines of this company are at present raising sufficient ore to run several custom mills in addition to their own 20-stamp mill.

OUR MINES throughout the whole dist., are looking extremely well on the lower levels, and the quality and quantity of the ore raised is constantly increasing. The dumps are all full and the teams hauling to the mill cannot keep them clear. Since the advent of steam engines, the amount of ore raised where they are used has been doubled, and sinking and prospecting is also being pushed rapidly ahead. New discoveries of large bodies of ore are constantly being made, and private claims are looking up and inviting attention.

### HUMBOLDT.

BULLION SHIPMENT.—Unionville, *Silver State*, Aug. 26th: The amount of bullion shipped from the Arizona mine, through W. F. & Co., since our last issue, was \$7,462.

SEMINOLE CO.—This Co. located in Eagle Canon, is prosecuting work in the tunnel. It has been driven ahead a sufficient distance to cut the front lead of the series claimed, without attaining that object. This is not discouraging in view of the fact that ledges seldom run any considera-

ble distance with mathematical accuracy.

NEARING COMPLETION.—The roasting furnace being built by the Arizona Association, and the tramway to the mine is to be ready for use in 20 days.

REPORTED STRIKE.—There is a rumor that a large and rich vein of ore has been struck in the Alpha mine, 3 miles south of Rye Patch.

IMPORTANT SALE.—Capt. T. Comins, of Dun Glen, has sold the following named mines to an English Co. for \$26,400; Bowen & Corning, Record, Nelson and Grass Valley, located in Sierra Dis., Humboldt Co.

DUN GLEN.—Sprague & Co., are erecting a new mill, for treating gold-bearing quartz, under a process patented by B. Paul. There are six mines in the neighborhood now being vigorously worked, all of which promise encouragingly.

TRINITY MINE.—Galena Cor. Humboldt *Register*, Aug. 26th: They have a body of chloride ore between 3½ and 4 ft. wide, high grade, intermixed with galena which carries heavy in silver.

WHITE MINE.—They continue taking out rich ore and plenty of it, and have struck a large vein of the 'silver wire' hearing ore in the first level. From the first and second levels they are drifting, working with the ledge northerly.

SHILOH MINE.—They continue sinking in the main shaft and from the 100 ft. level they are drifting, following the vein of rich mineral in sight.

BLACK HAWK.—They have about 8 or 10 inches of mineral (chloride) resembling the Butte ore and of high grade.

McBeth & Andrew are not working the Buena Vista, having transferred their men to the extension of the Little Giant at Battle Mt., which they think will pan out as well as the original 'Hope-so.'

BROOKLYN.—Boys resume work next week, having struck rich rock.

MEREDITH.—Boys will resume work next week. The boys have a good prospect and rich ore in sight. Prospecting is being pushed ahead vigorously.

### WASHOE.

BULLION SHIPPED.—Virginia *Enterprise*, Aug. 27th: The Bank of California yesterday shipped \$20,000 in silver bars, principally from the Savage and Belcher mines. During the two previous days they shipped \$20,500, mostly from the Crown Point.

BELCHER CO., AGAIN SHIPPING BULLION. This Co., yesterday shipped through the Bank of California 4 bars of gold and silver bullion weighing 5,048 oz., worth \$12,529, showing over 50 per cent. gold.

NEW LEVEL ON THE YELLOW JACKET.—The incline being sunk for the opening of a new level in this mine was yesterday down 126 feet below the 1,000 foot level. An excellent streak of ore was struck last Saturday. Supt. Taylor sums it up as 14 feet of \$30 ore.

THE OPHIR SHAFT is down a distance of 970 feet.

SUTRO TUNNEL was in yesterday 2,461 ft. They are in hard rock, but it blasts well. No water is coming in at the face of the tunnel.

KENTUCK CO. are taking out 60 tons of ore a day, upon which they are running the Excelsior and Devil's Gate mills. The latter mill started up Wednesday.

CHOLLAR POTOSI are extracting 125 tons of ore per day, assaying \$44 per ton. A considerable prospecting is being done. The principal operations being conducted on the Potosi tunnel level, and the first station from the new shaft. Last week 903 tons of ore was extracted assaying \$44.20 per ton on the average.

GOULD AND CURRY MINE.—The body of ore found between the second and third stations, is proving more extensive than at first anticipated.

RESUMED OPERATIONS.—Work was resumed at the Imperial-Empire shaft yesterday.

QUINN MINE.—A shaft is down upon the lead to the depth of 30 feet and it is found to be quite as rich at that depth as it was at the surface. An assay of ore taken from the bottom and various places above in the shaft, showed it to contain the precious metals at the rate of \$773 per ton.

BIG DAM.—Gold Hill *News*, Aug. 25: The big dam to be erected on Carson river for the new Eureka mill, will contain 365,000 feet of lumber. It will be 172 feet long and 24 feet 8 inches high, curving up the river six feet, between the two abutments.

### WHITE PINE.

BULLION SHIPMENT.—W. P. *News*, Aug. 19th: Total shipment for the week 32 bars, weighing 1,432 lbs., valued at \$37,950. Eberhardt & Aurora Co. shipped 21 bars, independently of the above, valued at \$23,000.

WARD BEECHER.—The hoisting works

are still engaged in hoisting through the main hoisting shaft, from the Lady's chamber in the east workings.

NORTH AURORA.—This mine, has, like the Ward Beecher, an excess of ore, by which we mean, that there is more piled on the surface dumps, and broken down in the mine, than can be readily disposed of, it being actually in the way.

ENERHARDT.—Development work is being vigorously prosecuted, with fair prospects of soon striking ore. Working 20 men.

WARD BEECHER CONSOLIDATED.—The quality of the ore in the drift from the north shaft has improved greatly, and the ore in the main workings still continues of a high grade. Shipping ore daily to the Manhattan, and a large accumulation on the dumps of the mine. Working 65 men.

ST. JOHN DEL REY.—Owned by a San Francisco Co., working three men, to get the claim opened for proper working. The first quality ore goes about \$80 per ton.

O. H. TREASURE.—The ore in the south face of the big cut still continues of good quality, with some good ore in the bottom. Still shipping ore to the Swansea and Big Smoky mills. Working 70 men.

SILVER WAVE.—The drift from the bottom of the prospect shaft is in ledge matter. A small quantity of good ore on the dumps, but milling none at present. Working 15 men.

POST-HOLE, SUMMIT & NEVADA, AND SOUTH IOERBERG.—Shipping first-class ore to the Big Smoky mill, and piling low grade ore on the dumps. Working 8 men.

MAMMOTH.—The drift from the main shaft is now in ore of a fine quality. A quantity of good ore is now on the dumps.

SILVER WAVE.—Good milling ore at the 140 ft. level. Hoisting ore and piling on the dumps. Working 4 men.

SILVER WEDGE.—The drift from the bottom of the shaft has pierced what is believed to be the main ore channel, and is now in the body a distance of 40 ft. Good ore is being hoisted.

EAST SHEROYGAN.—Working a small force. We understand that this mine has been sold to an English Co.

SUNNYSIDE.—Good ore in the new east drift. Hoisting and piling ore, preparatory to milling.

MILLS.—Internal—Running 40 stamps on ore from the Ward Beecher and North Aurora.

Oasis—Running on ore from the Ward Beecher.

Swansea—Running on ore from the Original Hidden Treasure.

Manhattan—Running on ore from the Ward Beecher Consolidated.

Big Smoky—Running 10 stamps on ore from Hidden Treasure and other mines. The other 10 stamps are being altered from dry to wet crushers.

## Arizona.

PINE GROVE.—Prescott *Miner*, Aug. 19th: A new ledge named the Black Hawk has been discovered. It is 7 feet thick at the surface, and prospects well in gold and silver. Shroader and Nelson, say that the Del Pasco shaft was down some 80 feet, when they left Wednesday last, and that the ore, at that depth, was richer than any hitherto taken from the vein. The little mill was tried on some ore a few days ago, and gave great satisfaction.

The work of prospecting several lodges in Bradshaw and Pine Grove Dist. goes bravely on, with very favorable results. All the lodges are yielding good ore. The great Vulture lode is reported doing better than ever.

BEAUTIFUL SPECIMEN.—The richest pieces of silver ore and most beautiful clusters of wire silver, that eye ever gazed upon, were brought over from the Tiger lode on Thursday. It is to-day, the richest known silver mine.

MINES IN ARIZONA.—There is just now, considerable excitement existing in Nevada and Utah Territory in regard to mines in Arizona. That there are rich mines in that region does not admit of a doubt but until the government exterminates the Apaches there is but one way to develop the mines. That is for large companies to form and detail as guard, a sufficient number to repel any attack that the Indians may make, while the rest work the mines. We therefore advise adventurers and prospectors to remain where they are, until the government orders the troops to the frontier, where they properly belong. Without a large force of soldiers Arizona is not a safe place—in fact is a certain graveyard to the prospector.

EXCITEMENT ABOUT THE PINAL MINES.—As the Pinal mountain prospectors sweep over the country, their numbers increase. They came via of Bradshaw and Sacator. On their arrival at the Gila, August, 7th,



consult William C. Coker, 27, New Montgomery street, under the Grand Hotel, San Francisco.



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING AUGUST 15TH.

CAR-COUPLING.—Perry W. Davis, Portland, Oregon.

SASH-HOLDER.—Thomas Jennings McCarver, Oregon City, Oregon.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

### ROAD STEAMER IN NEW YORK.

BY OUR NEW YORK EDITOR.

In the East, road steamers are a good deal of a novelty. A few have been built from time to time, run for a year or two and then broken up or laid aside. The most of them have come under the head of experiments. Steam road rollers are rather more common and practical. New York city has one which is in constant use on the Boulevards. Brooklyn has another in practical operation, built from designs by Mr. J. K. Fisher, of this city. Hartford, Conn., recently imported one of Messrs. Aveling & Porter's steam road rollers from England. The owners of the Dura pavement have a roller designed and built by Mr. Richard (?) Baxter, Jr., if we remember rightly. This little machine is quite handy and has been doing very fair work in pavement laying in this city. Its distinctive feature is a furnace which keeps the roller constantly hot, a necessary requirement in the work it has to perform.

Mr. Richard Dugon of this city, owns a passenger steamer for common roads. It was built by him several years ago, and is used occasionally, though not often. It is carefully taken care of and is always ready to fire up should the proprietor wish to make a trip.

This machine completes the list of working road engines in the Eastern States, so far as we know.

A few days since—during the last week in July—Mr. Oastler, the agent in America for Messrs. Aveling & Porter, dropped into our sanctum and informed us that he had just received a 5½ ton traction engine from England, and would be pleased to have us attend its first trial in America which would take place in a few days. In due season the notice came and we hurried off to the ferry to take the train to Waverly where the trial was to take place. It is of no use to tell our readers where the town is situated nor how to get there, because in the first place it is situated in "foreign parts"—to wit, in New Jersey; and secondly because it is distant at least a forty minutes' ride by rail from the city.

The Fair ground outside of its race course has a large circuit of ordinary dirt road, and upon this road the trial was to take place. After taking a lunch and getting ourselves into the best of humor we walked to the ground and found the steamer all ready for the trial with steam up.

#### Description and Trial of the Engine.

In general appearance, the engine is somewhat like the portable steam engines mounted on wheels that are used for driving portable saw mills. The wheels are about 18 inches broad. The driving wheels are five feet in diameter and the forward or leading ones scant four. We did not measure them but speak simply from memory. The iron tires of the driving wheels are armed with oblique cleats of boiler plate, and have holes for the insertion of iron spikes when occasion requires.

There is a single cylinder and a large fly-wheel to enable the engine to pass the centers. The water tank, coal bunkers and drivers station are at the rear of the boiler, and project so far as to throw the greater part of the weight upon the driving wheels,

only enough coming upon the leading wheels to enable them to guide the engine. The steering wheel is at the engineer's right hand so that he can guide the machine without difficulty while attending to his other duties.

The connection between the engine and driving wheels is by gearing so arranged that in turning, either wheel can revolve faster or slower than the other, while the engine exerts equal force on each. The valve is worked by an ordinary link motion with the usual locomotive reversing lever.

The inner wheel describes a circle about six feet in diameter when making the sharpest turns. The engine was run at various speeds, up hill and down, along levels, over grass land and around in small circles. At special request of the party the "driver" ran the engine up a sharp grade covered with grass. The inclination was, judged by the eye, one in five, at any rate it was as great as any one would wish to meet with a loaded team. It did this with ease and seemed well under control, and a handy engine to handle.

To recapitulate—the engine weighs 5½ tons, costs \$3,500, is of 26 indicated horsepower, is capable of pulling a load of 12 tons, besides its own weight, on ordinary roads, up grades of one in twelve at an expense of 300 pounds of coal per ten hours steaming.

The road bed over which it passed was of dirt and seemed improved by its passage. For the life of us we cannot see why engines of this kind are not profitable investments for men who have heavy teaming to do over ordinary roads. These engines can certainly go anywhere that it would be safe or prudent for a man to go with a loaded team.

We shall next week give an account of a competitive trial of traction engines in England, in which a sister engine to the one here described took the first premium. It will be of interest as it shows conclusively what such engines are capable of doing when pushed to their utmost.

#### "They've Come!"

Many amusing anecdotes are told at Washington of the late Commissioner of Agriculture, Mr. Newton—who was possessed of some remarkable traits of character. We were lately told of one that happened during the excitement of the late war, which we think has never been in print. On a certain occasion he hurried to the lobby of the House, and desired his card to be delivered to Speaker Colfax. The messenger informed Mr. Newton the speaker was then particularly engaged, and unless his business was very important, Mr. Colfax would hardly wish to be disturbed. "Important! very important," hurriedly exclaimed the Commissioner.

Mr. Colfax called a member to the chair, and hastened to the lobby—where Father Newton, in an excited manner, tapped him on the shoulder, and whispered—"They've come!"—"Who's come?" anxiously inquired Mr. Colfax. "The turnip seed."

The Speaker could not avoid his well known and characteristic smile as he wheeled upon his heel and returned to his official post.

IMPROVING THE QUINCE.—A correspondent of Tilton's *Journal of Horticulture* in urging that more attention should be paid to improving our various fruits and flowers, suggests that with care and patience we may yet obtain a quince as melting, palatable and digestible as pears. What a grand fruit we should have, if such a result could be obtained—if we could retain the flavor and aroma of the present quince and add them to the soft, melting juice pulps of the peach or pear! Such a result is by no means improbable. Less labor has probably been devoted to improving the quince than has been bestowed on any other fruit of the temperate zone.

THE LATEST THING ON SKATES.—Professor Lovett, the expert skater and manager of Woodward's Skating Rink, is having a Pedespede or one-wheeled skate made, on which he will in future give his skating exhibitions. The wheels are some eighteen inches in diameter, and the skate is strapped to the side of the leg.

WHILE gold is worth seventeen dollars per ounce, fine blonde hair readily commands twenty-five.

### The Snow Plant.

Along the western slope of the Sierra Nevada, and close to the line of the snow, there grows a strikingly interesting plant, commonly known as the Snow Plant. It was first discovered by the naturalist connected with Col. Fremont's party, in 1843 and 1844; but first brought to the notice of botanists by Dr. Torrey, in "*Plante Fremontiana*," where its history and true botanical character and position is given together with a plate.

Dr. Torrey described it under the name of *Sarcodes Sanguinea*. A new genus of the small sub-order *Monotropace* of the



THE CALIFORNIA SNOW PLANT.

natural family *Ericaceæ*. Its specific name aptly refers to its bloody or rosy color. The entire plant being of a succulent, fleshy texture, of from six to eighteen inches in height; growing under pine trees, generally starting up about the time the snow melts. It is sometimes seen growing up through the thin stratum of snow, and hence the popular name which has been given to it. It depends for moisture upon the melting snow. It resembles asparagus, somewhat in its form of growth, is equally succulent, and we have heard it stated, that when boiled and served up in the manner of that vegetable it is palatable and nourishing. The figure which we herewith present has been drawn and engraved for this paper from a photograph and is very little reduced in size from nature.

It has been found as far north as Lassen's Butte in Northern California, and abounds in the Yosemite valley, where its remarkable appearance attracts the attention of the commonest observer. Travelers crossing the Sierras early in the spring find the plant for sale at the way stations, as a floral curiosity.

It seems to be parasitic, and has not thus far been known in cultivation. We have known a specimen transferred to this city, which, by careful attention, and frequent watering with very cold water, increased some little in height and came into bloom; but soon withered and died.

The flowers are frequently brought to this city, where they are kept in vases of ice water, putting out flowers freely for several weeks.

A CHEAP ARTESIAN WELL.—The Kern County *Courier* of a late date says that Mr. Elias Dearborn, in the extreme southern portion of that county, while recently searching for pasture for his stock, found a locality where there was plenty of feed but no water. Thinking that there must be water near the surface to support the grass, he commenced digging and after going down about nine feet through moist clay struck a quick sand, which was too wet and loose to dig into. He then took a rake handle to probe the sand, and found but little difficulty in thrusting it down about eight feet. On withdrawing it, the water followed with such force that he was compelled to hasten out of the shaft which was soon filled so as to overflow, which it still continues to do—suitable curbing having been put down to the sand.

It is thought that this discovery will lead to the opening up of an immense tract of grazing land in that vicinity.

NEW POSTAL CAR.—The Central Pacific Railway shops of Sacramento recently turned out, from the paint shop, No. 1 of the new railway postal cars. Heretofore the mail agents on the overland road had half a car, Wells, Fargo & Co. having the other half. In this half they had to distribute letters, papers, sleep and live; but while so confined the through mail was packed into a baggage car. The exterior of these new cars is being constructed under the advice and suggestions of Mr. Alexander, of the Post Office Department, and is in every way as convenient as can well be imagined. In one end of the car are large pigeon-holes or boxes for papers, which together contain the names of every postoffice on the route from Ogden to San Francisco, both inclusive, so arranged that the distributor, standing in one place, has every box under his hand. Opposite these, and before reaching the middle of the car, are the boxes for the letters. In the center of the car is the route agent's room—with wash-stand, water closet, bunk for two, wardrobe, etc. In this there can be a stove, upon and by which the route agents can do their own cooking. The remainder of the car, nearly half, is set apart for through mail. No. 1 of these cars has left the paint shop—No. 2 goes into the paint shop to-day, and the Chief of Construction, Mr. Welch, has orders to turn more of them out as fast as he can, until there shall be one for every through train.—*Sacramento Bee*.

### America no Place For Fools.

In a lecture lately delivered before the London Farmers' Club, Mr. James Howard, the well-known manufacturer of implements, of Bedford, England, made the following pointed remarks concerning his experience in a recent visit to the United States. He said he had been profoundly impressed with the happiness, prosperity, energy, intelligence and self government of the American people. He wondered that so many people were willing to remain in the Old World, without a chance to rise, with hardly a chance to exist. If the United States were as crowded as England is, the population would be nearly a thousand millions. In reply, however, to the question whether he thought large and opulent farmers would do well to send their sons to America, he remarked, that one of the first memoranda which he made in his diary, after seeing the United States, was, that "it was no use to send a fool to America." Mr. Howard hit the nail on the head.



## USEFUL INFORMATION.

**CONDENSED MILK.**—All the public hospitals and charitable institutions of New York city are now supplied with condensed milk by the Am. Cond. Milk Co. The amount thus supplied reaches a monthly value of about \$3,000. A uniform quality is required according to a fixed standard established and ascertained by assay. Every 100 quarts of condensed milk represents 430 quarts of good milk direct from the cow.

The process of condensing is very simple. The milk is first strained, then heated to 145° F. in a water bath, again strained and then condensed in a copper vacuum pan in which the temperature marks from 105° to 113° F. The pan receives 425 gallons at a charge, and the condensation requires 2½. 50m. The milk is supplied daily as is the case with the ordinary mode of supply. By the condensation a large cost is saved in transportation while a uniform quality is more readily secured, and any variation from the fixed standard more readily detected.

**PHOSPHATES IN RUSSIA.**—An important discovery of phosphates has been made near St Petersburg. The bed resembles that in South Carolina, but is less in extent. This discovery affords another evidence that immense stores of fertilizing minerals have been laid up in the laboratories of nature, against the time when the wants of man will demand a larger yield from the earth than can be obtained by even the most economic use of the fertilizers already in the soil, or which can be added from the annual produce of crops.

**FEEDING GOLD-FISH.**—It is a capital mistake to suppose that gold-fish in aquaria do not want feeding. They may live some months on what they can gain from the water, but they eventually die of starvation. We know a gentleman who has a large tank full of gold-fish, fresh-water sun-fish, etc., who feeds them with calf-liver. It is cut in small pieces, dried in a slow oven, and then pulverized. A very little of this is sprinkled on the water and is greedily consumed by the fish. We have kept fish for years without loss, except by accident, giving them nothing but farina in small quantities, but we have lately discovered that they like corn-meal even better. There is an objection to feeding fish much where they are kept in aquaria with plants, and where the water can not be changed often. The water is apt to become fouled, and, indeed, will become more or less so in spite of all precaution. As we like a clean tank, we have ceased to keep plants, but change the water once a week, washing the tank, shells, pebbles, and sand thoroughly. It is not very much trouble, and it is a great satisfaction to have the glass thoroughly clean and the water clear. We think our fish are much more lively and interesting than those in tanks where the water is not changed so often, and is but poorly furnished with oxygen by the plants. We have made considerable headway in taming our fish. *Hearth and Home.*

**GLASS AS A NON-CONDUCTOR OF HEAT.**—Glass, says the *Journal of the Telegraph*, is practically a non-conductor of heat as well as of electricity. A practical example of the latter may have been seen in the use of glass as an insulator, a non-conductor, for telegraphic purposes. It is difficult to draw the line of non-conduction, but had conductors of heat are practically assumed as non-conductors. The question of conduction is purely one of degree. Let two rods of equal size and length—but one of copper and the other of glass—be brought together, and have at their extremity a small weight or marble attached by wax. Apply a spirit-lamp to their ends, touching each other so that the heat be equally applied; in the case of the copper, owing to its being a good conductor, the wax will rapidly melt and let the weight drop; while in the case of the glass, owing to its being a very bad conductor, a very long time must elapse before such a result can happen.

**PATCHES** may be fastened upon rubber boots and shoes, or cracks and rents closed up, with a cement made by dissolving rubber cut fine, in benzine.

**THE ABSORBENT POWERS OF A MELLOW SOIL.**—Experiments have shown that a mellow, loamy soil is capable of absorbing in twelve hours, when exposed to a moist atmosphere, an amount of water equal to two per cent. of its weight. If any argument were needed to keep the soil mellow, here is a most powerful one to induce us. For this property possessed by a mellow soil is one that in a dry season is able to give it the power of maturing a crop, when a hardened surface would be unable to do so. A surface that is impenetrable to the atmosphere, of course could not absorb any of the moisture with which the atmosphere is charged. But when rendered free from lumps by repeated plowings and harrowings, each change of temperature causes a circulation of air throughout the mass of soil, which is free then to absorb all the moisture coming in contact with it until it is saturated. So, then, the more the soil is mellowed by cultivation, the less it is injuriously affected by drouth, and the better it is enabled to mature a fair crop in spite of the absence of rain. *Hearth and Home.*

**PELICAN OIL.**—The people of Louisiana and Mississippi have originated a new source of wealth in capturing and obtaining the oil from the innumerable pelicans which frequent that portion of the Gulf coast. The business of capturing the birds and extracting their oil extends to Bay St. Louis, on the gulf coast, westward following the coast, and thence to the Belize. A fleet of small vessels are employed, and find there remuneration profitable. And the supply of birds is reported to be inexhaustible. Should they give out for any reason where they are now hunted, there are swamps they never desert, and there are the islands above, on which they are often seen in myriads.

**A SINGULAR ANT.**—Probably the most curious ant in the world is the parasol ant of the West Indies, if the accounts which we receive of its habits are correct. Dr. Forbes Winslow, in his work on Light, referring to Mrs. Somerville as his authority, says that these ants walk in long procession, each one carrying a cut leaf over his head as a parasol, in the sun, and they deposit these in holes ten or twelve feet under ground, apparently with no other object than to form a comfortable nest for a species of white snake which is invariably found coiled up among them on digging up the deposit.

**A NEW TELEGRAPH POLE.**—A proposed substitute for the present heavy telegraph pole has recently been patented. This new pole is made of galvanized iron tubes, which can be packed one within the other like a telescope, and therefore can be transported to distant points with great ease and at a moderate cost. For a pole standing fifteen feet out of the ground the first section is three inches in diameter, the second section two inches and a half, and the third section one inch and a quarter. The iron pole, with insulating arms, it is stated always insures a perfect current of electricity, and its substitution in place of the unsightly wooden poles is recommended.

**HOW TO KNOW AN IMITATION FROM A REAL DIAMOND.**—The real diamond, though brilliant, is not transparent. When a diamond is polished, but before it is set, its genuineness may be ascertained by laying it on a newspaper. If the stone hides the letters, it is real; if they shine through and are visible, the "diamond" is paste, rock crystal or other imitation.

**PALE SAPPHIRES** may be rendered entirely colorless by exposure to intense heat; they thus also acquire great brilliancy and are sometimes passed off as diamonds.

**A HEALTHY MAN** throws off daily an average of 120 grains of carbon, and 21 of nitrogen, which must be supplied to him, or he will weaken and finally perish.

**SEWING machines** are driven by steam power in Stewart's dry goods store and other large establishments in New York.

**THE bamboo** is said to grow at the extraordinary rate of four inches in twenty-four hours.

**A TANNERY** 100 by 600 feet, to contain 1,200 vats, is being erected at Grand Lake Stream, Maine.

**BUTTERFLIES** have been found flying at sea, six hundred miles from land.

## GOOD HEALTH.

## Babies in Bran.

According to the London *Lancet*, a plan has generally been adopted in France of placing babies in bran. An ordinary cradle is filled with common bran, a hair pillow is put in, and then the baby is moved aside with the hands until a hollow is formed the size of the child's body. The infant, divested of everything below the waist, and having a little bedclo or cape above that, is placed in the bran and its body completely covered with it, exactly as may be seen at the seaside at the present time, where children play at burying one another in the sand. A light coverlet or counterpane is placed above all, and the baby is in bed for the night. The two great advantages connected with bran are said to be its particular cleanliness and the pleasant and even temperature which it maintains about the infant's body. There seems to be no good reason, says an English paper, why this privilege, if it possesses these advantages, should be confined to the small portion of humanity. Bran might be used instead of bedding in casual wards, common lodging houses, and would be preferable to the dirty beds to be found at seaside lodgings. Perhaps the day is not far distant when the sojourner at the seaside will take his carpet bag, a folding box and a bag of bran, and bid defiance to dirt, fleas and infection.

**EXPERIMENTS WITH ONIONS.**—J. B. Wolf, M. D. of Washington, lately forwarded to the Farmer's Club, N. Y., the following communication: On shipboard at New Orleans, in the year 1849, in charge of one hundred marines, with cholera among them, I observed that those who ate freely of onions, supposing them to be healthy, were attacked certainly and fatally. Onions and salt cured the bite of a rattlesnake on my son, and are considered specific in all snake bites. I have found four separate witnesses of phenomena connected with small-pox and fevers:

1. Onions in rooms with small-pox rot rapidly.
2. Blisters rise in them.
3. They retain and communicate the virus many weeks after the epidemic has subsided.
4. Applied to the feet of fever patients they rapidly turn black.
5. They prevent the spread of small-pox in thickly populated tenements by absorbing the virus.

6. A man with hydropothia, in his frenzy ate voraciously of them and recovered.

- From all these facts may be deduced:
1. That onions should not be eaten when there is a prevailing epidemic.
  2. That onions sliced and frequently changed are good disinfectants.
  3. That experiments should be made to test of their usefulness. For many years I have opposed vaccination as ordinarily done, and hence hail with satisfaction any means of mitigating the virus of this distemper.

**POSTURE OF THE HEAD IN SLEEPING.**—It is often a question among people who are unacquainted with anatomy and physiology whether lying with the head exalted, or on a level with the body is the more unwholesome. Most people consulting their own case on this point, argue in favor of that which they prefer. Now although many delight in holstering up their heads at night, and sleep soundly without injury, yet we declare it to be a dangerous habit. The vessels in which the blood passes from the heart to the head are always lessened in their cavities when the head is resting in bed, higher than the body; therefore, in all diseases attended with fever, the head ought to be pretty nearly on a level with the body; and people ought to accustom themselves to sleep thus and avoid the danger.

**WARM BATHING.**—The warm bath is a grand remedy, and will often prevent the most virulent of diseases. A person who may be in fear of having received infection of any kind, should speedily plunge into a warm bath, suffer perspiration to ensue, and then rub dry, and dress securely to guard against taking cold. If the system has imbibed any infectious matter, it will certainly be removed by this process if it be resorted to before the infection has time to spread over the system; and even if some time has elapsed, the drenching perspiration that may be induced in a hot bath will be pretty sure to remove it. *Family Herald.*

## Children Should go to Bed Early.

Many children, instead of being plump and fresh as a peach, are as withered and wrinkled as last year's apples, because they do not sleep enough. Some physicians think that the bones grow only during sleep. This I can not say, certainly, but I do know that these little folks who sit up late at night are usually nervous, weak, small and sickly.

The reason you need more sleep than your parents is, because you have to grow and they do not. They can use up the food they eat in thinking, talking and walking, while you should save some of yours for growing. You ought to sleep a great deal; if you do not, you will in activity consume all you eat, and have none, or not enough, to grow with.

Very few smart children excel, or even equal, other people when they grow up. Why is this? Because their heads, if not their bodies, are kept too busy; so that they cannot sleep, rest, and grow strong in body and brain. Now, when your mother says Susie, or Georgie, or whatever your name may be, it is time to go to bed, do not worry her by begging to sit up "just a little longer."

But hurry off to your chamber, remembering that you have a great deal of sleeping and growing to do to make you a healthy, bappy, and useful man or woman. *Etc.*

**FOOD MEDICINE.**—Dr. Hall relates the case of a man who was cured of biliousness by going without his supper and drinking freely of lemonade. Every morning, says the doctor, this patient rose with wonderful sense of rest and refreshment, and a feeling as though the blood had been literally washed, cleansed and cooled by the lemonade and the fast. His theory is that food will be used as a remedy for many diseases successfully. As an example, he cures cases of spitting blood by the use of salt; epilepsy and yellow fever by watermelon; kidney affections, by celery; poison, olive and sweet oil; erysipelas, pounded cranberries applied to the parts affected; hydropothia, onions, etc. So the way to keep in good health is really to know what to eat, not what medicine to take.

**SALT IN THE HUMAN SYSTEM.**—A scientific gentleman in Scotland states that 57 per cent. of the saline matter of the blood consists of common salt, and as this is partly evolved every day through the skin and kidneys, the necessity of continued supplies of it to the healthy body is sufficiently obvious. The bile also contains soda (one of the ingredients of salt), as a special and indispensable constituent, and so do all the cartilages of the body. Stint the supply of salt, and neither will the bile be able properly to assist digestion, nor the cartilages to be built up again as they naturally waste. It is better to place salt where stock can have free access to it.

**A MAN** will die for want of air in five minutes, for want of sleep in ten days, for want of water in a week, for want of food at varying intervals, dependent on constitution, habits of life, and the circumstances of the occasion. Instances have been given where persons have been said to live many weeks without eating a particle of food, but when opportunities have been offered for a fair investigation of the case, it has been invariably found that a weak and wicked fraud has been at the bottom of it.

**DEATH FROM MULBERRIES.**—Five persons have recently been found dead in Mississippi under mulberry trees. Death in all these cases has been attributed to eating mulberries which have been impregnated by locusts. In the stomach of one colored boy, says the Woodville *Republican*, was found a quantity of mulberry seeds and the locust eggs. Two children in Wilkinson county are also reported to have died from eating plums similarly impregnated.

**CARE OF THE HAIR.**—Frequent brushing and washing once a week with a teaspoonful of liquid ammonia in a bowlful of warm water, is said to be the best treatment possible for the hair. If any stimulant is required, half an ounce of dry ammonia, rubbed into a pint of olive oil, is the finest dressing to be made, and prevents hair from turning gray, if anything will, and urges its growth.

**EATING BEFORE RETIRING.**—It is very injurious to eat just before retiring. The desire for it is simply the result of habit or of a morbid craving—and should be at once overcome.



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San Francisco:

Saturday Morning, Sept. 2, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, August 30, 1871.—Legal Tenders buying 89; selling, 89½. Gold in New York to-day, 112½.

## Table of Contents.

Brown's Vapor Burner—III.; Hoskin's Improved Hydraulic Joint—III.; Musical Toy for Pianos—III.; Stephens' Combination Rule—III.	129
MECHANICAL PROGRESS.—The Influence of Coffee and Cocoa; Meteoric Stones; Effects of Colored Rays on Development.	130
SCIENTIFIC PROGRESS.—Sawing and Seasoning Timber; A Revolving Safe; Drilling with Sand; Extracting Oil from Oil Cake.	130
A Trip Through Utah Territory; Boiler Explosions—Prevention Better than Cure; The San Diego Mines; Bull Run, Nevada.	131
MINING SUMMARY.—California, Idaho, Montana, Arizona, Colorado and Utah.	132-33
Market Review: Mining Shareholder's Directory, etc.	133
Patents and Inventions; Road Steamer in New York; the Snow Plant—III.; A Cheap Artesian Well.	134
Useful Information; Good Health.	135
Home Manufactures; Notes at the Mechanics' Institute Exhibition.	136
The Geysers—III.; Work at the Foundries; Important Mining Sale; Faulkner's Improved Punch—III.; Mining Schools Among the Miners.	137
Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.	138

**COTTON IN YOLO.**—The Woodland Democrat says that the Railroad company planted, last spring, about two acres of cotton, as an experiment on the unclaimed tule land above Knight's Landing. The seed was the Sea Island variety and imported. It was supposed to be somewhat imperfect, as it did not germinate as evenly and quickly as was expected. However, a tolerably good stand was produced and about 1½ of the two acres looks very promising. It is about three feet high. The growth of the stock is very rapid. Persons familiar with cotton growing pronounce the prospects very flattering, and believe this soil to be admirably adapted to the growth of this staple; although the experiment has not been a fair one either in planting or after cultivation.

**NEW PATENT FIRE HOSE AND TRIAL.**—The city authorities of Marysville, recently purchased 2,000 feet of patent combination steam fire hose from the Gutta Percha Rubber Manufacturing Company of New York, which company has an agency in this city, in charge of Messrs. Taylor & Sullivan. Nineteen hundred feet of this hose was recently subjected to a very severe trial at Marysville, when a pressure of 370 pounds failed to find a weak spot. The hose when subjected to this great pressure, resembled more the appearance of an iron pipe than a rubber combination. The test was highly satisfactory to the city authorities and the large number of firemen and citizens who witnessed it.

**MORE SECOND CROPS.**—About 2,000 acres of land on Sherman Island, from which a crop of grain was harvested in June, was immediately flooded, allowed to settle for two weeks, then plowed and harrowed for a volunteer crop of hay which will be cut about the 20th of October.

## Home Manufactures.

For more than twenty years the opinion has been current, and often the theme of both common conversation and elaborate essays, that California can never become a manufacturing country. For this grave and foreboding opinion three formal reasons are given, viz: that the country does not produce the raw material; that our distance from producing countries is so great that transportation of the raw material would cost us so much that we could not compete with others; and that if we had the material, the price of labor is so high as to be absolutely prohibitory.

These premises being true, the conclusion would be necessary; but are they? If any one of them is not true, or only partially true, the conclusion will necessarily be modified. If they are all fallacious, the conclusion falls to the ground. Let us examine somewhat carefully, for the importance of the subject to the future of our State is absolutely vital.

*First*—Do we not produce the raw material?

Of wheat, the market reports of the principal cities and the most populous nations on the globe, attest our ability to supply in almost unlimited quantities. And the manufactures from wheat are by no means confined to flour and breadstuffs. The starch for our ten thousand laundries, and the preservative spirits of every medicine chest, and the stimulants of every sick chamber in the civilized world, are, in no inconsiderable measure, drawn from this staple product.

Of wool, we produce enough to supply, in no small degree, the large manufactories of the East, and that, too, at highly remunerative prices. So eminently is this true, that if present prices could be guaranteed for the next seven years, California would, before that time, produce more than is now produced in the whole United States.

Of hides and skins for leather, the horns for combs and the hoofs for glue, largely used in Eastern manufactories, we supply a large amount.

Our ability to produce cotton and flax is fully demonstrated, while our product of grapes—the substratum of different manufactures—is unquestioned and unrivalled.

But in the department of wood fit for manufacturing purposes, it has been most boldly and persistently asserted that we do not and cannot produce it. This idea is, however, rapidly yielding to the stubborn argument of facts. The panel work in our State Capitol, from the native woods of our hills, has attracted the marked attention and praise of persons of the highest culture, fresh from the examination of the best work in the capitols and palaces of Europe. The locust and the bodach, grown everywhere on our bottom lands with great readiness and vigor, are not surpassed in any part of the world for excellence in the manufacture of all kinds of wagons and carriages.

It is evident from these facts, pertaining to only a few of our many productions, that the first premise—inability to produce—is a fallacy. It is proposed, in future brief articles, to show that the others are equally so.

**ARRIVED.**—Prof. W. P. Blake, M. E., recently arrived from the East, having been absent from the Pacific Coast since 1867, a portion of which time he has spent in Washington, in the employ of the U. S. Government compiling the reports of the Paris Exposition. It will be remembered that the Professor represented California as State Commissioner at the World's Fair.

**ILLUSTRATIONS.**—J. H. Andrews' Gang Plow; Matteson & Williamson's Gang Plow; Edmund Higgings' Self-opening Gate; Vestal's Wagon Axle Gauge, and several other California inventions will soon be illustrated in the Press.

## NOTES AT THE S. F. MECHANICS' INSTITUTE FAIR.

[In these articles we have room only to notice briefly such articles as come specially under our observation. More replete descriptions of the most interesting and instructive exhibits will be given in the Press in our greater leisure hereafter. No classified catalogue being published we do not in this number give complete notices in any particular department.]

A FARM GATE, practical in every particular that we can see, is exhibited by M. Bartel, and described in our notices of recent inventions. An enterprising manufacturer can make money out of this invention here and in the Eastern States—we think.

HUNTER & WEISTER'S SEPARATOR is the simplest and cheapest successfully operating grain cleaner in the world. The grain is separated from foul seed and foreign substances by a series of inclined screens receiving rapid concussions by means of cams and springs. It runs easy, is light and easily handled. No fan is employed in it.

THE NOVELTY FANNING MILL—R. Stone, agent, S. F.—has been illustrated and described in the SCIENTIFIC PRESS as a first class mill for thorough and complete separation and cleaning. We always find it working well and satisfactory. Good construction and completeness are the points claimed for it.

NASH & CUTT'S FANNING MILL AND SEPARATOR, is exhibited by Nash, King, Miller & Co., of Sacramento. It is a well tried and we believe favorably considered apparatus at home. A wide range of work is claimed for it, rendering it an extended field of usefulness for cleaning all kinds of grain, peas, beans, corn, etc. The better preparation of our cereals for market, and especially for seeding, by the extended use of this class of machinery is worthy of all encouragement.

EUREKA CHURN, by E. Grout, Napa, has two series of fingers or stirrers placed in the manner of folded hands or fingers, working in opposite directions back and forth in the cream, by a hand lever.

A NEW METHOD OF PRESERVING FRUIT in jars, by exhausting the air is effected by a novel apparatus invented by D. N. Phelps. His experiments are worthy of a more extended notice than we are now giving, and will receive attention hereafter.

THE PACIFIC POTTERY, of N. Clark & Co., Sacramento, have a good display, and are alone in their wide range of useful home manufactures.

A POULTRY FOUNTAIN is a new device made by the above firm. It consists of an earthen bottle having a minute hole at the bottom. This is set into an earthen tray of about 2½ inches greater diameter than the bottle. The bottle filled, corked tight at the top, and placed in the tray will discharge water into the same until the small supply hole is covered, when the discharge will cease for reason that the air is cut off from supplying the vacuum necessarily formed in the bottle. As soon, however, as the fowls lower the water in the tray the bottle will give down a fresh supply.

WINE CASKS.—Messrs. Fulda & Sons, as a leading cooperage firm of this city, exhibit samples of their mammoth work unsurpassed by any country. Our great wine interests have brought out much skill in this branch of home industry, and Mr. L. R. Fulda (a young member of the firm) has patented, and is still procuring patents, for inventions calculated to do work in his line by machinery to greater advantage than has hitherto been attempted.

HORTICULTURAL.—In the horticultural exhibition, Mr. D. L. Perkins, of Sherman Island, has added to his prominent display, the following:—Water melons, 3 varieties; cantelopes, 3 do.; beans, green, 5 do.; tomatoes, 3 do.; beets, 3 do.; cucumbers, 3 do.; squashes, 2 do.; carrots, 1 do.; onions, 1 do.; potatoes, 3 do.

Among the cantelopes we find a variety called the Magnesia, a very lato keeper, being in good condition for the table about the 1st of January. The sample exhibited is not more than half grown. Mr. Perkins thinks that for sugar it has no superior, being very heavy, and full of saccharine.

Amongst the potatoes we find the Climax, a new variety of whites. Also the four-pound Trophy tomato. All these vegetables were growing on his ranch on Monday afternoon and were in the Fair on Tuesday evening.

GEO. A. LLOYD'S STAMP MILL is still operating, crushing quartz to a fine flour with remarkable rapidity for the size of its stamps. The springs attached to the stamps send them home with a velocity and power worth imitating and trying on a larger scale.

CROCKER'S TRIP HAMMER QUARTZ CRUSHER meets with outspoken favor by some of our best posted mining operators. Several persons have signified their intentions to adopt it.

C. H. Foster, a San Francisco inventor, exhibits an earthquake proof truss and a design for an iron roof.

MANN'S EARTHQUAKE PROOF CHIMNEY is exhibited by Tay, Brooks & Backus. It consists of an ornamental iron fire-place lined with brick or concrete, and two sizes of sheet iron pipes, one encircled by the other with sufficient space between for about one inch of cement filling. These pipes are made in sections and kept on hand so that a fire-place chimney can be purchased and erected about as quickly as an ordinary stone and pipe can be set in place. With imitation marble or japanned mantles they are capable of being made quite ornamental.

FORD'S HOOK AND EYE MACHINE, the very ingenious California invention, which many would like to have seen taken the inventor's gold medal at the last fair, is seen each evening converting coiled wire into both hooks and eyes at the same instant with a completeness and rapidity truly astonishing to the crowd which always surrounds it. It is equalled by no machine of its class in the world.

THE SAN FRANCISCO GLASS WORKS, Newman & Venal, proprietors, have a fine display, including the best glass ware we have had our attention directed to as home made. White, green, amber, purple, blue and black are included in its colors. Fine white vials from ¼ to 16 ozs., lamp chimneys, fish globes, siphons, tubes, retorts and other apparatus wares are shown equal if not superior to the imported wares. Many articles are made with special regard to the requirements of this coast, and are furnished to better advantage to customers than they could otherwise be procured. Mr. Newman, an old hand from the glass ware center of Pittsburgh, Pa., has been once burned out but will not stay down. Such men and home enterprises should be appreciated in our new community. Mr. Newman has patented an improved glass melting pot, a fruit can, besides other inventions.

BEDSTEAD FASTENER.—E. T. Barlow, by an improvement in clamps, renders bedsteads perfectly secure at all hours of sleeping or waking. He inserts an iron hook in the mortices in the posts, into which fit the clamps of the side rails of the former, which are made instantly adjustable and secure. It makes a stronger joint than the old style by a very cheap device.

BOSTON AGENCY.—T. C. Evans, No. 106 Washington street, Boston, will receive subscriptions and advertisements for our paper. We have known Mr. Evans as a reliable newspaper advertising agent for 10 years.

SHEEP FOR ALASKA.—It is proposed to send some sheep to Alaska with the view of acclimatizing them in our northern possession.



## GEYSER CANON\*.

The accompanying cut is a general view of the far-famed Geyser Cañon, one of the great natural curiosities of our much-to-be-admired State.

The Geyser springs are situated among the hills in Sonoma county, about 100 miles from San Francisco, and are so easy of access that not only tourists, but the people in our own community, should not fail to visit them. The view of the Geyser from the hotel is grand in the extreme, especially in the early morning, when the dense volume of steam can be seen rising in majestic columns from the cañon in the distance; but when the sun is up, the cloud is less dense, it being speedily evaporated.

Leaving the hotel, which is situated at the base of the hill among the timber, you pass up the rocky trail to the summit and thence down into the Geyser Cañon, the subject of our sketch. The first spring that attracts attention is the "Steamboat Geyser," on the side hill, so called from the noise it makes, resembling that of a steamer "blowing off." The steam escapes through a hole in the rocks about two feet square, as if from under great pressure, and in fact makes more noise than any spring in the cañon. It is dangerous for a stranger to approach too close, for the steam is so overheated that it is invisible until some distance in the air, and a slight change in the direction of the wind might be attended with serious consequences.

Below and in the center of the cañon is the "Witches' Cauldron," formed by four large rocks, and the water which is of inky blackness, is continually bubbling up with great noise, so as to render conversation in the vicinity impracticable. This is aptly named and one might easily imagine in the dusk of evening, the three witches crouching

"Double, double, toil and trouble"

around this infernal kettle, in this appropriately wild and unearthly spot. The vapor from this spring deposits a black sediment on all the rocks in the vicinity.

The "Devil's Pulpit" is next in order, at the head of the cañon on the hill. The hotel may be seen from this point and a fine view obtained of the Geysers themselves. The ground is hollow and trembles under the footstep, so that a timid spectator might well suppose this to be a favorite resort of his satanic majesty. The "Lovers' Retreat" is a quiet, secluded spot, surrounded by foliage, beside which the stream murmurs placidly on its way to the sea. A fallen tree serves for a seat, to those romantic enough to spend an hour here, and two large stones may be used as foot-stools.

Among the smaller springs, which are numerous, are the "Devil's Tea-Kettle" and the "Devil's Ink-Bottle," from the latter of which issues a liquid which can be, and is, used for writing purposes; but which on being left quietly in a bottle precipitates a black, sulphurous substance, leaving the liquid as colorless as water. The stream moving down the cañon is cold at its source, but gradually becomes warmer, from the numerous springs of different gradation of temperature which empty into it. Boiling water, and that cold enough to drink can be seen issuing from the gourd in the space of a foot. The rocks and ground are heated so that in many places it is impossible to stand for any length of time, and as for sitting,—just try it. The old orator on the trail from the "Lovers' Retreat" to the hotel is worthy of a visit, the ground in the vicinity being covered with sulphur, sometimes beautifully crystallized, and as we walk, an undulating motion is perceptible, and it sounds hollow and vibratory, so as to make one "brush up" his philosophy and begin to calculate on the thickness of the earth's crust, and the possibility of its breaking through.

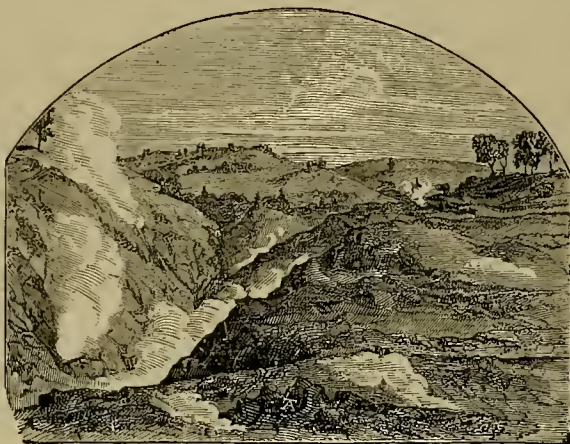
The chemical substances are various and in abundance. There is a large chalk bed, another of a substance they call "putty," which is soft under the foot and can be kneaded in the hand. Epsom salts, alum, "devil's ink," magnesia, alum waters, a liquid they call, in the locality, eye water, copperas, iron water, cinnamon and quantities of sulphur of course.

This locality will please not only a lover of nature, from the grandness of the scenery, but scientific men who are capable of divining the mysterious causes of these springs, can enjoy it as a study. It is said that the winter is the best time for a visit. There are two routes, one *via* Petaluma and Healdsburg, and the other, by taking the steamer 'Capital' to Vallejo, thence by cars to Calistoga (always worthy of a visit), and then, by Foss' line of stages, over a romantic and delightful road about 28 miles, to the Geysers. The latter is the one most generally traveled.

\*Our illustration is from the Scenes and Wonders of California, by J. M. Hutchings. A. Roman & Co., Publishers, San Francisco.

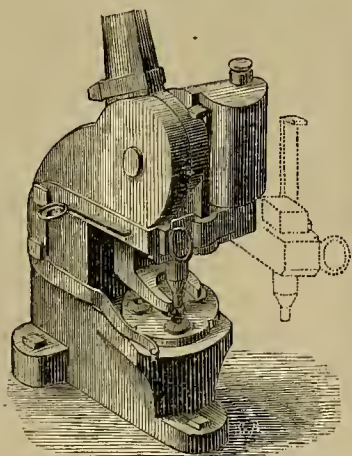
## Faulkner's Improved Punch.

This invention (the patent for which was secured through the SCIENTIFIC PRESS PATENT AGENCY) relates to improvements



GEYSER CANON.

in stationary punches, such as are used for perforating leather, metal or other substances. The improvements consist, first, of a movable die, in which are holes of different sizes, which can be revolved so as to bring any size under the punch; second,



FAULKNER'S IMPROVED PUNCH.

the manner of attaching and operating the punch so that it can be readily removed or changed for one of a different size when necessary.

The body of the punch is constructed in the ordinary manner. By referring to the accompanying illustration, it will be seen that the movable die is secured in any required position by a spring, passing from the body of the punch, having a "pawl" which holds the die in its place by slots placed in the proper positions. The punch stem is provided with an enlarged head, which rests on the upper side of the

movable block, as can be seen by the section marked by dotted lines in the cut. The manner of swinging back the front of the machine for the purpose of removing the punch, can also be seen by reference to these dotted lines. The advantage of this invention is, that it provides a punch which can easily and quickly be adjusted so as to make any size of hole without removing and changing the die plate. The whole machine is no larger than an ordinary punch, and the improvements can readily be seen by any person familiar with those now in use.

## Work at the Foundries.

We understand that the San Francisco Boiler works, 125 Beale street, have recently completed two large boilers for the Crown Point mine, Gold Hill, Nevada, two for the Steam Plow Propeller Co., and one each, as follows:—Steamer Newbern; Idaho mine, Grass Valley; Oakland Gas Co.; Tubbs Hotel, Brooklyn; Pacific Brewery, in this city, and Donnelly's Yeast Powder manufactory.

We are informed that the Oakland Gas works are being enlarged and remodelled in the most substantial manner. The castings for the same which are all of new

mining interests will continue to grow until mining will rank with merchandising, agriculture, and manufactures. There should be no more risk attached to mining than to any other branch of industry, and the time is not far distant when the business of mining will be entrusted to safe, practical, and competent men. When this course is strictly adhered to, there will not be as many failures in mining heralded through the country.

## Important Mining Sales.

H. Gutierrez, of the Stock Exchange, London, paid out on Monday last, \$200,000 on the purchase of the "Independence" mine, at Sierra Buttes, Sierra county. Mr. G. has also bought the "Pacific" mine at Placerville, Cal., and is interested in the purchase of the Buel and Bateman property at Bingham Cañon, Utah, at \$400,000, made some three weeks ago. Several other prominent mines have been bonded to this gentleman for sale, which are likely to go into English hands. He brought his own mining engineer, Capt. Bray, of London. They both return to England this week after a quiet but very important visit.

Thus some of the very best and safest of our mining property is passing into foreign hands. We have the satisfaction of knowing, however, that there are plenty of the same kind yet undeveloped.

## The Prevention of Boiler Scale.

From the best information we can obtain we believe that the public is at last offered a cheap and effective remedy for most of the causes of incrustation of boilers. The remedy consists simply in introducing a small per cent. of the volatile alkali-ammonia, and thus breaking up the flinty carbonates of iron and lime into a fine powder which is readily washed or blown out of the boiler. In another column will be found an advertisement of this "Ammoniacal Preparation." It is manufactured by the San Francisco Gas Company, and sold by Mr. Curry, the well-known proprietor of the San Francisco Boiler Works.

Lengthy and careful trials in a 20-horse power boiler, at the Vulcan Iron Works, have developed the important facts that it does not injure the iron, while it does remove old scale and prevent the formation of new with the most satisfactory rapidity and completeness.

Some months ago Mr. Smedberg published a note upon the subject in one of our daily papers which foreshadowed the results of later and extended practical experiment; and the argument is closed, so far as any question of the efficiency of this preparation is concerned. With the water commonly used here, a pint per day of this preparation suffices to keep a 20-horse boiler perfectly clean. The cost is mere nominal, as will be seen by reference as above. Our mining companies, many of whom are seriously troubled in this way, would do well to test this preparation, and learn its virtues by the light of actual trial.

PROF. J. A. WHITNEY, editor of the *American Artisan*, N. Y., paid a brief visit to San Francisco, last week. On his way hither he took a look at the mines of Virginia City, attended the Mechanics' Institute Fair here, passed through the U. S. Branch mint, and we presume carries home copious notes from which he will elaborate numerous editorials for the *Artisan*.

ARSENIC SPRING.—A number of men employed at the Cement Hill mine, near Nevada, became mysteriously sick, says the *Nevada Transcript* of the 18th inst., showing symptoms of having taken poison. They had been drinking freely from a spring of clear cold water, near the mine, and with one or two exceptions, all who drank of the water became sick. This induced Mr. Stranahan, the Superintendent of the mine, to have some of the water of the spring analyzed, and it was found to be strongly impregnated with arsenic. It is said one gallon of the water contains sufficient arsenic to poison half a dozen men.

patterns from designs by Mr. Smedberg of the S. F. Gas works, are being turned out by Thompson Bros., of the Eureka Foundry, 131 Beale street. The boiler, roof, and iron work are from the San Francisco Boiler Works, 125 Beale street.

A walking beam engine of 8-horse power is to be built for the same, at the machine works of Messrs. Hawkins & Cantrell, 210 Beale street, in this city.

## Mining Schools Among the Miners.

Slowly but surely an improved interest is beginning to be felt by the public at large, both here and at the East, in behalf of mining education. As an evidence of the truth of this remark we may mention the fact that there has recently been quite a large delegation of Professors and students from the Technological Schools of the East, now in Colorado, for the purpose of making the mines a study. The manner in which this is done is indicated by the *Central City Register*, as follows:—

Each student has assigned him a special mine, mill or other subject to report upon. All the results of their investigations are to be printed and preserved for future reference. The present trip is too expensive to be repeated every year. This fact suggests much in favor of establishing a School of Mines in Colorado, where the students can have this experience, which is acknowledged by the Professors now among us, to be of great and lasting advantage to their students. There is nothing more plain than this fact, and our people should agitate this matter, until a School of Mines shall have been established in our territory. No one doubts at this age of mining development, that America is destined to rival any other country on the globe in mineral wealth, in the quantity, variety, and richness of its minerals. We shall have need of a large army of skilled laborers and managers, metallurgists and geologists. Our



## DOMESTIC ECONOMY.

### Pastry.

In making pastry, the cook should be particularly clean and neat. Her utensils should be kept in order, and when they are done with, should be carefully cleaned and put in their places. Her pasteboard and rolling-pin, let it be remembered, should after using be well scoured with hot water alone. A marble slab is preferable to a board for rolling paste. Both are generally made too small to be convenient. Three feet long by two feet wide is a good size. In making a paste, a good cook will have no waste of any kind, and particularly, she will not make more at one time than she wants, under the idea that she can keep it in flour till the next time of making, for it is ten to one but that the old paste will spoil the new. No flour except the very best can be used for fine descriptions of pastry, and in damp weather it should be dried before the fire, but not scorched. Clarified dripping, good lard, marrow, salt or butter well washed, may be used for ordinary pastry; indeed, if they are pure and sweet, they will form good pastry, with good flour and good management. In families, however, where economy is not an object, and everything for the table is required to be of the first quality, the safest plan is to use the best fresh butter. The fat that settles on stews, and on the broth in which meat has been boiled, may be used for pastry, that is, provided it is tasteless. Suet is sometimes used for meat pies, but though it makes a light crust when hot, it does not eat well when cold.

A great deal more butter, or fat of some kind or other, was formerly directed to be used in making pastry than at present. For ordinary purposes, half the weight of lard, or butter is sufficient, but in the richest crusts the quantity should never exceed the weight of flour. Eggs may be added to enrich the crust. Use no more water or other liquid in making paste than is absolutely necessary; or, in other words, take care not to "put out the miller's eye," that is, to make the paste too moist. The great thing is to incorporate the flour well with the fat, which you cannot do if you allow too much water or milk in the first instance.

The under or side crust, which should be thin, should not be made so rich as the top crust, as otherwise it will make the gravy or syrup greasy. All dishes in which pieces are to be baked should be buttered or greased round the edges, to prevent the crust from sticking, and if there be an under crust, all over the inside; the same must be done with tins or saucers.

**OUR KITCHENS.**—You are fortunate if your kitchens have a sunny outlook. A south window catches all the precious winter sunshine, and is not as uncomfortable on account of heat in the summer as an east or west window. Sunshine goes a great way towards furnishing a room, as well as driving care, fatigue and disease away from those who live and work in it. Of course, you may not all have model kitchens, though you may so much desire them; and just here comes to mind this quaint old rhyme, which applies to housekeepers, as much as to any other class:

"For every evil under the sun  
There is a remedy, or there is none.  
If there be one, try and find it;  
If there be none, never mind it."

**CURRENT WINE.**—Gather full ripe currants on a dry day, pick them from the stalks and weigh them; then crush them with your hands, leaving none whole. For every two pounds of currants put one quart of water; stir all well together and let it stand three hours, and strain the liquor through a sieve; then for every three pounds of currants put one pound of powdered loaf sugar; stir it till the sugar is dissolved, boil it and keep skimming it as long as any scum will rise. Let it stand sixteen hours to cool before you put it in the cask, stop that very close. If the quantity be twenty gallons, let it stand three weeks before you bottle it; if it be thirty gallons, it must remain a month; it should be perfectly clear when drawn off. Put a lump of sugar in each bottle, cork it well and keep it in a cool place or it will turn sour. This is a pleasant and cheap wine, and if properly made will keep good for many years; it makes an agreeable beverage for the sick, when mixed with water.

**TO STEW TOMATOES.**—Pour boiling water over fair and fully ripe tomatoes, that you may peel them quickly; let the water remain only long enough to start the skin. When peeled, cut into a porcelain-lined kettle, as tin or iron turns them dark, and gives them a bad taste. If onions are agreeable, cut one small one in with the tomatoes. Cover closely, and set where they will gently simmer, but not boil hard. Stir them occasionally to prevent burning, and when they have cooked two hours, add pepper and salt to suit your taste, and to a quart of tomatoes add a teaspoonful and a half of sugar, and  $\frac{2}{3}$  even spoonful of bread or cracker crumbs. After the crumbs are added stir often or they will stick to the bottom of the dish and soon burn. Twenty minutes before dinner beat two eggs, or if you have more than a quart of tomatoes, increase the number in proportion of two eggs to a quart; stir briskly, and often after the eggs are added, and serve hot. If possible, the tomatoes should be skinned and set on the back part of the stove before breakfast, as the longer they simmer, the better they will be. Three hours' slow cooking at least—five is better. If prepared according to rule, they are thought very nice by tomato lovers, and are better warmed over the second day than the first.

**CUCUMBER SALAD.**—Take a dozen ripe "White Spine" cucumbers and pick, wash, pare, and cut into strips, taking out the seeds; then to each dozen cucumbers—which we cut up into pieces like small dice—put twelve large white onions, chopped, six large green peppers, also chopped, one quarter pound each black and white mustard seed, and a gill of celery seed. Mix together, add a tea-cup of coarse salt, and hang up in a cotton bag to drain, for twenty-four hours. Then the salad, with enough cold cider vinegar added to cover it, is put into stone jars and fastened nearly air-tight. In six weeks it will be fit for use.—Mrs. S. J. H., in *Hearth and Home*.

**RASPBERRY VINEGAR.**—Put a pound of very fine ripe raspberries in a bowl, *bruise them well*, and pour upon them a quart of the best white wine vinegar; next day strain the liquor on a pound of fresh ripe raspberries, bruise them also, and the following day do the same, *but do not squeeze the fruit or you will make it ferment*, only drain the liquor as dry as you can from it. The last time pass it through a canvas bag previously wet with the vinegar, to prevent waste. Put the juice into a stone jar, with a pound of sugar to every pint of juice; the sugar must be broken into lumps; stir it, and when melted, put the jar into a pan of water; let it simmer, and then skim it; when cold, bottle it. It will be fine and thick when cold, and a most excellent syrup for making a wholesome drink.—*German Town Telegraph*.

**LAYING DOWN CUCUMBERS.**—The best way to lay down cucumbers is to sprinkle salt over them, and let them form their own brine. A board and stone should be laid over them, in order to keep them under the brine. If in three days there is not enough brine formed to cover the cucumbers, there is not salt enough on them and more should be added. They should never be allowed to protrude above the brine, as a white mold will form and they will soon soften. In cutting the cucumbers from the vine, leave a stem on the pickles. They keep better and appear better on the table.

**TO DO UP SHIRT BOSOMS.**—Take two ounces of fine white gum arabic powder, put it into a pitcher and pour on a pint of water and then having covered it, let it stand all night. In the morning pour it carefully from the dregs into a clean bottle, cork it and keep it for use. A tablespoonful of gum water poured in a pint of starch made in the usual manner, will give to lawn, either white or printed, a look of newness, when nothing else can restore them after they have been washed.

**HOW TO MAKE SEIDLITZ POWDERS.**—Seidlitz powders are an excellent corrective for acidity of the stomach; and every farmer can make them for himself. Mix twelve drams of powdered Epsom salts with twelve scruples of powder carbonate of soda, and divide into six parts in blue papers. Divide also into six parts, in white papers, four drams of Tartaric acid in six powders. Every time you take the powders, mix one of each paper in two glasses.

**TO DRY CITRON OR WATERMELON RIND.**—After preserving, place in the sun, and dry. They answer well in puddings and cakes as a substitute for the imported citron.

### Domestic Receipts.

**APPLE SNOW.**—Stew fine-flavored, sour apples; sweeten and flavor to suit your taste; strain, and to one quart of sifted apples allow the whites of four eggs. Whisk them to a stiff froth; then put the apples and whites together, and continue to whip until so stiff you can turn the dish upside down without the mass falling off. Eat with cream or with bread and milk.

**SCALLOPED TOMATOES.**—Peel and cut in slices a quarter of an inch thick. Pack in a pudding dish in alternate layers, with a force-meat made of bread crumbs, butter, salt, pepper, and a little white sugar. Spread thickly upon each stratum of tomatoes, and the dish is nearly full, put tomatoes uppermost, and a good bit of butter upon each slice. Dust with pepper and a little sugar. Strew with dry bread crumbs and bake covered, half an hour; remove the lid and bake brown.

**TOMATO SOUP.**— $\frac{2}{3}$  lbs. of veal or lamb, 1 gallon of water, 2 quarts of fresh tomatoes peeled and cut up fine. Boil the meat to shreds, and the water down to two quarts. Strain the liquor, put in the tomatoes, stirring them very hard, that they may dissolve thoroughly; boil half an hour. Season with parsley, or any herb you may prefer, add pepper and salt. Strain again and stir in a tablespoonful of butter, with a teaspoonful of white sugar, before putting into the tureen.

**BREAKFAST BISCUIT.**—Take a piece of risen bread dough, and work into it one beaten egg and a tablespoonful of butter or lard; when it is thoroughly amalgamated, flour your hands and make it into balls the size of an egg; rub a tin over with milk, and set them in a quick oven for twenty minutes, and serve them hot for breakfast. When eaten, break them open; to cut would make them heavy.

**BREAD-AND-BUTTER PUDDING.**—When dry bread is left, spread it with butter, and pile up the slices in a pudding-dish. Fill in with custard, add a few raisins. Bake long enough to cook the custard.

**PEACH LEATHER.**—Peel very ripe, soft peaches; mash them fine, and strain through a colander. If the peaches are not very sweet, add a little sugar. Butter well panes of glass, and spread the paste smoothly upon them. Put in the sun to dry; when dry on one side, turn it, and when perfectly dry, roll and keep in boxes. When not convenient to use the glass, butter strips of cloth, and spread upon well-seasoned boards.

### Mechanical Hints.

**TO LIGHT SHADED ROOMS.**—The London *Builder* recommends a plan for lighting a room in which the darkness is caused by its being situated on a narrow street or lane. If the glass of a window in such a room is placed several inches within the outer face of the wall, as is the general custom in building houses, it will admit very little light, that which it gets being only the reflection from the walls of the opposite houses. If, however, for the window be substituted another in which all the panes of glass are roughly ground on the outside, and flush with the outer wall, the light from the whole of the visible sky and the remotest parts of the opposite wall will be introduced into the apartment, reflected from the innumerable faces or facets which the rough grinding of glass has produced. The whole window will appear as if the sky were beyond it, and from every point of this luminous surface light will radiate into all parts of the room.

**TO DRAW POSTS FROM THE GROUND.**—Procure a long chain, attach it to the yoke, pass it around the base of the post, or the part where the earth has been thrown away, place a stout prop under the chain, inclining towards the post, then let the oxen draw. There are very few posts so tight in the ground that they cannot be easily removed by the strength of two stout oxen. In this way a long line of fence may be removed in a single day.

**TO REMOVE A SCREW FROM WOOD.**—Heat a piece of iron red hot and put it on the top of the screw for a minute or two, then take the screw-driver and you will easily get it out, if you do it while it is warm.

**STAINS** may be removed from silver spoons that have been used in administering medicine by rubbing them with a rag dipped in sulphuric acid and afterward washing thoroughly in soap-suds.

**THE FASTEST LOCOMOTIVE TIME.**—Locomotive No. 8, of the New Jersey railroad company, is said to be the fastest locomotive in the United States, having made eighty-nine miles in one hour.

## LIFE THOUGHTS.

NEVER part for a day without loving words to think of during absence.

To address man wisely you must not forget that his life is partly animal, subject to the same laws with nature.

THERE are a thousand pretty, engaging little ways which every person may put on without being affected or foppish.

THE worst people are most injured by slanderers; as we usually find that to be the best fruit, which the birds have been picking at.

LIFE is like a theatre. During the play we take higher and lower seats, but when it is over we mingle in the common stream and go home.

THERE are no pockets in shrouds, nor money drawers in coffins. But we accumulate good or bad capital for the other world for all that.

IT is easy enough to make sacrifices for those we love, but for our enemy we have to struggle and overcome self. Such a victory is noble.

A RARE audacity astonishes society—a remarkable instance disarms it. Society does not grant its admiration to those who creep in secret paths. Opinions in our day must be coerced, not led.

SHAKESPEARE says, "It is a good divine that follows his own instructions. I can easier teach twenty men what were to be done, than to be one of twenty to follow my own teachings."

ALL earth shows forth too nice and delicate an adaptation, too beautiful a continuation of cause and effect, to admit even a thought that the Creator has failed in His highest creation.

### Little Things of Life.

The little things of life are not to be despised. They are the threads that make its woof and warp, and the life is dark or bright accordingly as these little threads are black or golden. It is grains of sand that make the ocean heath, and globules of water that make up the ocean itself, and, singularly enough, these grains of sand, and these globules of water are, each, separate, detached and distinct. Each forms part of the mass, but each is by itself. Every life is a mass of a myriad of atoms; each day of the four score years that make it up is a teeming history of acts, words, adventures, incidents, relations, thoughts, hopes, griefs, fears and emotions, each standing by itself but all connected together.

We may not neglect these individual trifles, and expect the mass they compose to be satisfactory. Even a word or a tone of voice, may make a day bright or dark; the shadow on the face of a friend casually met, will reflect a shadow on our own heart, and give us a feeling of depression that we can not comprehend, and which can not be thrown off.

A letter containing a few brief lines, from an absent relative, will sometimes drive all the clouds from our sky and make the dreariest winter day as sweet as summer. We read the letter in an instant, cast it aside, and imagine it is forgotten—so trifling and foolish it is; but it is not forgotten; it floats like a radiance around us wherever we go; it makes us strong, buoyant, and hopeful.

Our moods have much to do with our happiness; they come over us like a bath of sunlight, or creep upon us like a dismal shadow—we can not tell how; but there is always a specific cause for them. It may be so minute as to escape attention in the mass of events and incidents that make up the day's history; but if we search patiently, we will generally discover that the joy that has attended us all day long had its source in some look of love, word of sympathy, or some gratifying success in the execution of a trifling task; and that the "blues" that haunt us, are the reflection from a cold face, or the result of some petty annoyance.

Happiness does not come to us in heaps, and it is foolish to imagine that we can by a great, heroic effort of perseverance and care, bring down an avalanche of it enough, to last a lifetime. Nor is it dependent on times and seasons; we can not be very happy at some distant day, by being very miserable, now. Joy comes in batches—sometimes, in specks, which we should make the most of while they last. It is like a scant shower of gold dust, scattered through our lives—not to make them all happy, but to relieve them of their heaviness and sorrow.



## Business Cards.

**JOHN ROACH, Optician.**  
Has removed from 322 Montgomery street to  
540 Washington street,  
East of Montgomery.  
Surveying Instruments made, repaired and adjusted  
22v17-3m

**Farmers and Mechanics  
BANK OF SAVINGS,**  
No. 225 Sansome Street.  
Interest paid on Deposits. Money Loaned on Real Estate.  
H. DUTTON, President.  
GEO. M. CONDEE Cashier. 19v16-3m

W. M. BARTLING. HENRY KIMBALL.  
**BARTLING & KIMBALL,  
BOOK BINDERS,**  
Paper Rulers and Blank Book Manufacturers.  
505 Clay street, (southwest cor. Sansome),  
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15v12-3m

**SAN FRANCISCO  
CORDAGE COMPANY.**  
Manilla Rope of all sizes. Also, Bule Rope and Whale  
Line constantly on hand. Mining Ropes of any size  
and length manufactured to order.  
TUBBS & CO., Agents,  
611 and 613 Front street.  
26

**SAN FRANCISCO MILL.**  
**HOBBS, GILMORE & CO.,**  
Manufacturers of Boxes,  
Market Street, bet. Beale and Main.  
For sale—Mahogany, Spanish Cedar, and other Woods.

**JOSEPH GILLOTT'S  
STEEL PENS.**  
Sold by all Dealers throughout the World.

**CO-OPERATIVE UNION**  
**Grocery and Provision Store**  
Removed to 722 Market street, bet. Kearny and Dupont  
SAN FRANCISCO.  
apl-1f

**J. F. PAGES,  
SEAL ENGRAVER,  
AND LETTER CUTTER.**  
Brass and Steel Stamps and Dies, 608 Sacramento street,  
San Francisco. Orders by express promptly attended to.

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PIONEER  
Meerscham Pipe Manufacturer,**  
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Between Bush and Pine streets, San Francisco.  
The first and only Manufactory on the Pacific Coast.  
MEERSCHAUMS MOUNTED WITH SILVER. Meerscham  
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

**The Merchants' Exchange Bank  
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Capital, One Million Dollars.  
LEVI STEVENS.....President.  
R. N. VAN BRUNT.....Cashier.

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25v20-4y

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be at each Car Depot and Steamboat, plainly marked In-  
ternational Hotel, to convey passengers to the Hotel  
FREE, and to any part of the city at reasonable rates.  
F. E. WEYGANT & H. C. PARTRIDGE,  
Proprietors.  
24v22-3m

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Homoeopathic Physician and Surgeon.**  
Dr. Hiller pays particular attention to Operative Sur-  
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cisco. mal-6m

**E. J. FRASER, M. D.,  
SURGEON,**  
No. 108 Stockton street, S. F., Cal

**OCCIDENTAL  
Insurance Company  
OF SAN FRANCISCO.**  
ash Capital, . . . . . \$300,000  
GOLD COIN  
OFFICE, 436 CALIFORNIA STREET.  
**Fire and Marine Insurance.**  
All Losses paid in U. S. Gold Coin.  
A. G. STILES, President.  
R. ROTHSCHILD, Secretary. 20v17

## Eastern Advertisements.

**SAFES**  
BANK LOCKS. VAULT WORK.  
**HALL'S SAFE & LOCK CO**  
CINCINNATI, O. CHICAGO, ILL. ST. LOUIS, MO.  
CLEVELAND, O. LOUISVILLE, KY.  
Established 1846.

Claims for our Safes and Locks are:  
1st—They have never been Destroyed by Fire.  
2d—They have never been Robbed by Burglars.  
3d—They are Fire, Damp and Burglar Proof.  
4th—They are Superior in Finish to any Safe made  
5th—Our Seven varieties of Combination Locks sur-  
pass any Locks made in point of Finish, Security and  
Simplicity.  
6th—Our Locks have stood a Nine Days' Trial by ex-  
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7th—We will put from \$1,000 to \$10,000 behind them.  
8th—Our Safes and Locks have ALWAYS taken the  
Gold Medals at all Expositions.  
9th—Our Safes combine some 26 Patent Improve-  
ments, and consequently possess Superior Advantages,  
in point of Security, to any Safe made.

AN INSPECTION WILL PROVE  
the above assertions.  
J. R. CARNAHAN, GENERAL AGENT, will remain in  
San Francisco until September 1st. Office with CON-  
ROY & O'CONNOR. Bankers, Merchants, Jewelers,  
etc., are cordially invited to call. mail-6m

**STOUT, MILLS & TEMPLE,  
PROPRIETORS OF THE  
GLOBE IRON WORKS,  
DAYTON, OHIO.**  
**Hydraulic  
ENGINEERS,  
Patentees  
AND  
Manufacturers**  
OF THE Per cent. of Power guaranteed  
equal to any Overshot Wheel.

**American Turbine Water Wheel,  
MILL GEARING AND SHAFTING**  
Of all Descriptions, and General Mill Furnishing.  
Water Powers Estimated and Plans Furnished.  
A. L. STOUT, W. M. MILLS, J. TEMPLE.  
Send for Descriptive Circular. mail-6m

**Phoenixville Bridge Works  
OF PENNSYLVANIA.**  
**CLARKE, REEVES & CO.,  
ENGINEERS AND BUILDERS.**  
NEW BRIDGES, VIADUCTS, ROOFS, ETC.  
Would respectfully call the attention of the officers of  
Railway Companies, and Engineers having charge of  
New Bridge Constructions, to their new  
Album of Designs,  
showing various styles of New Railroad Bridges, Viad-  
ucts, etc., which they have either constructed or are  
prepared to construct. A copy will be mailed on ap-  
plication to our address, No. 410 Walnut Street, Phila-  
delphia. mp-8-ly

**DICKINSON'S  
Patent Shaped Diamond Carbon-Points.**  
Fig. 1 Fig. 2 Fig. 3 Fig. 4  
Diamond and Carbon, shaped or erude, furnished and  
set for Dressing Mill-Burrs, Emery-Wheels, Grindstones,  
Conglomerate, Drilling Rock, Sawing or Working Stone,  
Tracing up Hardened Steel, and for other mechanical  
purposes. Also Glaziers' Diamonds. See Scientific  
American, July 24th, Nov. 20th and 27th, 1869; Engi-  
neering and Mining Journal, Jan. 17th, 1871; Journal of  
the Franklin Institute, Philadelphia, June, 1870. For  
Circulars descriptive, and Prices, send stamp to  
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## Improved Universal Wood Worker

  
Joining, Rabbling, Beveling, Panel-Raising,  
Gaining, Planing out Wind, Smoothing,  
Floeing, Circular Moulding,  
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**BORING AND ROUTING,**  
Hand-Matching, Beading, Fluting, Sawing,  
THICKENING, MAKING, MOULDINGS,  
Sash, Door and Blind Work,  
Car Furniture, Etc., Etc.  
**THE MOST USEFUL,  
Economical and Labor-Saving Machine of Modern  
Invention.**  
Send for Circular, Etc., to  
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HAMILTON, OHIO.  
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GLOVERSVILLE, NEW YORK.  
**J. B. VEDDER,**.....Patentee.  
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DIRECTORS:  
J. C. HUTCHINSON, L. H. PALMER,  
J. J. HANSON, J. B. VEDDER.  
Send for Circulars containing further particulars.  
Illustrated in SCIENTIFIC PRESS of June, 1871.  
Address **L. P. JOHNSON, Pres't,**  
Box 834, Gloversville, N. Y.  
Or L. H. PALMER, office of Taylor & Co., 16 Wall  
street, New York. 2v23-3m

**Peteler Portable Railroad Co.,**  
OFFICE, 42 BROADWAY, NEW YORK.  
**TO CONTRACTORS, MINERS, ETC.**  
  
By this invention, one man, with one horse and five  
cars, does the work of ten men, ten horses and ten carts.  
Highly Approved by all who Use Them.  
CARS AND TRACKS FOR SALE OR TO LET  
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New and Superior Chromos.**  
The Changed Cross, size 22 by 28.  
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The Beautiful Snow, size 16 by 22.  
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**ALL REAL GEMS OF ART.**  
Sold by Leading Dealers throughout the  
United States, and Wholesale by the Pub-  
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**J. HOOVER,**  
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First Premiums awarded by American Institute, N. Y.  
**MICROSCOPES.**  
Illustrated Price List sent free.  
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Catalogue, priced and illustrated, sent free.  
McALLISTER, Optician, 49 Nassau street, New York.  
3v23-1y

## DENSLOW & BUSH'S "SAFETY" OIL

**SAFETY OIL  
KNOWN**  
Will Not Explode!  
Stands a fire test over 15  
minutes. We take ordi-  
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and re-distill it by our new  
process, rejecting fully 75  
percent (Benzine and Tar), the cause  
of all Kerosene explosions,  
bad odors, smoke, gas, etc.  
Our "SAFETY" Oil costs 1  
cent per hour, and a lighted  
lamp may be upset and bro-  
ken without fear of explosion  
or fire. The Fire Underwriters of N. Y. recommend its use  
as a protection to life and property. For sale by all grocers,  
druggists, etc., in the U. S. Extra inducements to dealers  
and agents. Address Denslow & Bush, 130 Maiden Lane,  
N. Y.; 8 Custom H. street, Boston, Mass.; 31 S. Calvert  
street, Baltimore, Md.; 51 S. Water street, Chicago, Ill.; or  
Cleveland, Ohio. P. S.—5 gallons expressed for \$3 to any  
place where not for sale. 8-213t

**DANA BICKFORD'S  
NEW IMPROVED FAMILY  
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**\$1,000 TO \$5,000 A YEAR, AGENTS**  
can make in almost  
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guaranteed (in its present completeness) to meet every  
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Price \$25. Send stamped envelope with full directions  
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**BELLIS' PATENT GOVERNOR.**  
It is the CHEAPEST and BEST Regulator for Steam  
Engines known to mechanics.  
We offer SPECIAL INDUCEMENTS to Engine Build-  
ers. Address for Circular and Price List, SINKER,  
DAVIS & CO., Indianapolis, Ind. au-13w

**Travelers' Guide.**  
**CENTRAL PACIFIC RAILROAD.**  
Passenger Express August 27, 1871. Express Train Pass-  
Sundays excepted. Sundaes  
Daily. Daily. excepted  
4:00 P.M. 8:00 A.M. San Francisco... 3:45 P.M. 12:30 P.M.  
4:20 P.M. 8:40 A.M. Oakland... 3:12 P.M. 11:30 P.M.  
3:50 P.M. 7:30 A.M. San Jose... 3:30 P.M. 12:15 P.M.  
8:20 P.M. 12:25 P.M. Stockton... 1:25 P.M. 7:55 P.M.  
10:30 P.M. 2:10 P.M. Sacramento... 11:45 A.M. 6:00 A.M.  
4:10 P.M. Marysville... 8:10 A.M.  
7:50 P.M. Sema... 3:40 A.M.  
2:30 P.M. Sacramento... 11:45 A.M.  
5:25 P.M. Colfax... 8:45 A.M.  
1:15 A.M. Reno... 1:40 A.M.  
9:10 A.M. Winnemucca... 4:05 P.M.  
12:00 M. Battle Mountain... 1:25 P.M.  
4:40 P.M. Elko... 8:45 A.M.  
6:30 A.M. Oron... 5:20 P.M.  
WESTWARD

**SAN JOSE BRANCH.**—Leave SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 3 P. M. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily  
(except Sundays).  
**OAKLAND BRANCH.**—Leave SAN FRANCISCO, \*6:50,  
8:00, 9:10, 10:20 and 11:10 a. m., 12:00, 1:30, 3:00, 4:00, 5:15, 6:30, 8:30  
and \*11:30 p. m. (On 29, 10 and 30 to Oakland only).  
Leave BROOKLYN, \*5:15, \*6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.  
Leave OAKLAND, \*5:25, \*6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.  
**ALAMEDA BRANCH.**—Leave SAN FRANCISCO, 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruit Vale only).  
Leave HAYWARDS, \*1:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
Leave FRUIT VALE, \*5:25, 7:35, 9:00 and 11:20 a. m., 1:30,  
1:05 and 5:30 p. m.  
\*Trains do not run Sundays.  
**T. H. GOODMAN, A. N. TOWNE,**  
Gen'l Pass'r and Ticket Agt. Gen'l Supt.

**PENNSYLVANIA CENTRAL R. R.**  
AND  
**Pittsburgh, Fort Wayne and Chicago R. R.**  
—IS—  
61 Miles the shortest line  
From Chicago to New York. Three daily lines of  
Pullman's Palace Day and Sleeping Cars  
from Chicago  
to Pittsburgh,  
Harrisburg,  
Philadelphia and New York  
WITHOUT CHANGE!  
With but one change to Baltimore, Hartford, Provi-  
dence, Springfield, New Haven, Worcester, Boston. And  
is the most direct route to Washington city.  
Express trains on this line are now equipped with WEST-  
INGHOUSE PATENT AIR BRAKES.  
**Boston and New England Passengers**  
will find this route especially desirable, as it gives them  
an opportunity of seeing the finest views among the  
Alleghany Mountains, besides visiting Pittsburgh, Phila-  
delphia, and New York without extra cost.  
All New England Passengers holding through  
tickets will be transferred, with their baggage, to Rail  
and Boat connections in New York without change.  
Through Tickets via this great short route for sale in  
San Francisco, at 422 California street, 208 Montgomery  
st., 306 Montgomery st., and at Ticket office of Central  
Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne  
Denver and Omaha. Be sure your tickets read via  
Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago  
route.  
J. R. ERRINGER, JR., Gen'l Agent,  
4v22-1y San Francisco, Cal.

**UNION PACIFIC RAILROAD.**  
Running from Ogden, Utah, to Omaha, Nebraska—over  
one thousand miles, without change of cars.  
**MAKING DIRECT CONNECTIONS**  
AT OGDEN with the CENTRAL PACIFIC R. R. (from San  
Francisco); also with the Utah Central R. R. to Salt Lake  
City.  
AT CHEYENNE with the DENVER PACIFIC R. R., for  
Denver City and the Mining Districts of Colorado.  
AT OMAHA, for Chicago, Eastern and other cities, with  
the Chicago and Northwestern; Chicago, Rock Island and  
Pacific; Burlington and Missouri River; St. Joseph and  
Council Bluffs Railroads; also, for St. Louis and all South-  
ern cities.  
**EXPRESS TRAINS RUN DAILY.**—The U. P. R. use  
the Westinghouse patent air brake; Miller's patent trussed  
platform and elastic car-coupler; and the most approved  
construction of cars for the comfort and safety of passen-  
gers.  
**PULLMAN'S MOST MAGNIFICENT PALACE SLEEP-  
ING CARS** attached to express trains.  
**T. L. KIMBALL,**  
General Passenger Agent, Omaha.



### An American Hotel for Invalids.

There is a decided want in this city of a comfortable and well managed institution to which Americans and others, particularly strangers from the interior, who have means to pay their way, can repair, and be certain of good medical treatment and nursing. Such people are now compelled to resort to hotels, which are poor places at best, for invalids, and always more or less lacking in most of the essentials needed by them. We need a HOTEL for invalids, where people can repair without the appearance of seeking charity, and where they can find accommodations suitable for their needs and means.

In view of these facts it is proposed to found an institution, modelled somewhat after the plan of the *Maisons de Sante* of Paris.

Such an institution should unite the qualities of a good hotel and a first-class hospital. It should be located outside of the din and bustle of the city, and in the midst of pleasant, ornamental grounds.

In order that people of different circumstances and means may be accommodated—as at different classes of hotels, it is proposed to establish two such "Hotels," to be under American auspices and control, and to be open for the reception and treatment of all invalids willing and able to pay the charges of board, medical and other attendance, etc. The plan is for

#### 1st.—A First-Class Hotel for Invalids,

In which the charges would range from \$3 per day for a single room, to \$8 per day for a suite of three rooms. This hotel would be fitted and managed so as to satisfy the most fastidious persons, and would correspond with the best class of the Paris "Maisons de Sante."

#### 2d.—A Second-Class Hotel for Invalids

In which the charge would range from \$1 per day in one of the large wards, to \$2.50 per day in a first-class single room. For style and object, this hotel would correspond with St. Mary's, German, Italian and French hospitals of the city. It would be the sanitary resort for persons of small or moderate means—mechanics, small employes, miners, and the laboring classes generally; and would, it is presumed, be very available for such societies, as the American and British Benevolent, Masons, Odd Fellows, Redmen, Pioneers, Israelites, and such like societies, also for such churches and congregations as have no private hospitals of their own. The building could be so constructed as to furnish, at reduced rates, suites of rooms or wards to different societies and denominations where they could minister to their members in their own way. They could also provide their own physicians and nurses, and obtain, in consequence, a greater reduction in the rates.

#### Both Establishments,

(Either of which could, if thought best, be founded first and in different localities) to be managed by a Board of Trustees, composed of a number of our best business men. This project, which is submitted to the consideration of our public spirited capitalists, could be carried out by an association, which might be known as "The American Hotel for Invalids' Association." The capital for such a scheme would range from \$100,000 to \$250,000, according to the extensiveness of the plans. We understand that several of our prominent citizens have already expressed a willingness to unite with others in an association for such a purpose.

The above is only an outline of a plan which might be modified to suit the views of parties who might take an active interest in the enterprise. There is no city in the world, in proportion to its population, where such an institution is so much needed as in San Francisco; and mainly for the reason that this is the only point

on the entire Pacific coast where invalids especially in the absence of homes and home associations, can go for proper treatment and care. Aside from the humanitarian nature of the proposition, there is but little doubt but what such an institution could be made to pay as an investment. We trust the idea may be carried out, with that liberal and public spirited enterprise which always characterizes whatever is undertaken by the solid men of this city.

**A HERMET ON TWITCHEL ISLAND.**—The *Antioch Ledger* says that on the northern side of Twitchel Island near the bank of the Sacramento there has lived alone, without neighbor, kith or kin, for four years a man named Russel. Fascinated with the beauty of the spot, this eccentric individual, who by occupation is a trapper, built for himself a convenient house, surrounding it with an orchard, vineyard, ornamental trees, etc., and until recently, he was like Alexander Selkirk, "monarch of all he surveyed." When the tax was levied for the construction of a levee around the island he paid his apportionment on two hundred acres which he had purchased of the State, but requested that his home should not be inclosed, desiring the benefit of the river's overflow. Mr. Russel has engaged extensively in bee raising and annually ships large quantities of honey to San Francisco, which he finds a profitable business.

**EDITORS PRESS:**—Can you tell us why the flea powders, so much used on this coast, are death to insects and harmless to the touch (and perhaps taste) of individuals?

Because they act merely upon the respiratory organs of the insect. They are not "poisonous" in the usual sense of that term. They simply close up the breathing organs of insects, by mechanically obstructing the passage of the air thereto.

MR. WM. H. MURRAY, special corresponding agent for the *SCIENTIFIC PRESS* and the *PACIFIC RURAL PRESS* of San Francisco, arrived in Elko on Wednesday, and is still engaged as usual in the interest of the two excellent papers mentioned, and we are glad to learn that he has been meeting with gratifying success. Mr. Murray comes here from the eastward, having just completed an extended tour through Utah and Colorado. He left here to visit Railroad District; and from thence will go to Mineral Hill, Eureka and White Pine. Having canvassed those mining regions, he then proposes to inspect Cope and wend his way through Idaho. Mr. Murray has also been exerting himself in the interest of the great Industrial Fair to be held in San Francisco on the 8th instant, and hopes a good showing of minerals of Nevada will be made. Contributions of minerals and metals from the mines of Nevada will be given a prominent place and will be labeled, and will attract attention and capital to our mines. Wells, Fargo & Co. will forward, free of charge, all packages addressed to the Mechanics' Institute, care of J. H. Gilmore, San Francisco. *Independent, Elko, 5th.*

#### Premium for New Subscriptions.

There are many persons not familiar with the value of the Press who would ever after be thankful to our present subscribers for bringing their names on to our list of intelligent readers. Large additions can be made with little effort by the many in this way. We therefore offer (post paid) a premium of one of the patent newspaper file holders (advertised in this paper) for every two new subscriptions received with \$8 advanced payment.

#### Our Printed Mail List.

Subscribers will notice that the figures found on the right of the pasted slips, represent the date to which they have paid. For instance, 21st/70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4/72, that he has paid to the 4th of January, 1872; 4/73, to the 4th of July, 1873. The inverted figures occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction. Please notify us if you are not properly credited within two weeks after paying.

#### Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by using Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

W. H. MURRAY—General Travelling Agent.  
TALBOT P. POWERS—Solana and neighboring Counties.  
I. N. HOAO—Sacramento, General Agent.  
F. M. SHAW—San Diego.  
T. W. DRUILLARD—California.  
M. W. LEVY—Denver, Colorado.  
M. B. STARR—Pacific Coast.  
THOS. POYZER—California.  
WM. J. CLARK—California.  
JOSEPH DIMMICK—California.  
E. P. HICKS—California and Oregon.  
A. O. KNOX, City Soliciting and Collecting Agent.

Opera Glasses, Pebble Spectacles, and Eyeglasses, in great variety, wholesale and retail. C. MILLER, Optician, 205 Montgomery street, Russ Block, San Francisco. 7/23-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

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Subscribers for this journal can obtain our Patent Elastic Newspaper File Holder and Binder for \$1.50—containing gilt title of the paper on the cover. It preserves the papers completely and in such shape that they may be quickly fastened and retained in book form at the end of the volume, and the binder (which is very durable) used continuously for subsequent volumes. Sent postage free. It can be used for Harper's Weekly and other papers of similar size. If not entirely pleased, purchasers may return them within 30 days. Just the thing for libraries and reading rooms, and all who wish to file the Press.

THE SAN FRANCISCO SCIENTIFIC PRESS of July 29th has a well written communication from Mr. Murray, its agent, giving a truthful description of Golden and its resources. In connection with it is a sectional cut of our coal beds, which is an important accompaniment. The Press is an excellent paper, and is doing much in the dissemination of knowledge of our growing west. —*Transcript, Golden, Col.*

COPIES WANTED OF THE SCIENTIFIC PRESS OF JANUARY 7, 1871. We will pay 25 cents per copy, at this office, and also feel obliged to the sender.

A FLORENCE SEWING MACHINE, but slightly used, and good as new, for sale at 10 per cent. less than its cost—\$57.50. Part of the money may be paid in installments by a person who gives good recommendations in the city, or in the country near San Francisco. To be seen at John I. Tay's, Broadway, Oakland.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

N. Seibert's Eureka Lubricators for steam cylinders are acknowledged by 160 engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not run or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8/23-3m

**CURE FOR COUGH OR COLD.**—As soon as there is the slightest uneasiness of the Chest, with difficulty of breathing, or indications of Cough, take during the day a few "Brown's Bronchial Troches." Containing demulcent ingredients, they allay Pulmonary Irritation. Have them in readiness upon the first appearance of a Cold or Cough.

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. *The Globe* says: "Various importers are acknowledged by 160 engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not run or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8/23-3m

**PSYCHOMANCY.**—Any Lady or Gentleman can make \$1,000 a month, secure their own happiness and independence by reading Psychomancy, Fascination or Soul Charming, 400 pages. Full instructions to use this power over men or animals at will, how to mesmerize, become France or Writing Mediums, Dyrmatism, Spiritualism, Alchemy, Philosophy of Omens, and Dreams, Brigham Young's Harem, Guide to Marriage, &c.; 200,000 sold. Sent by mail for \$1.00 or \$1.25, per copy. S. B. The Philonix Star speaking of the book says the author is HERBERT H. ALTON, B. A., the celebrated Psychological Lecturer, and the publisher, T. W. EVANS, one of the oldest Perfumers and Publishers in the city. The reputation of whose name is a sufficient guarantee of the merits of the work. MR. EVANS has spent \$90,000 already in advertising and getting out this extraordinary book. Skeptics in Psychology read and he convinced of its worth.

**NOTICE.**—Any person willing to act as Agent will receive a sample copy FREE. As no capital is required, all kinds of goods can be sold, and sent for by order, enclosing 5 cents for postage, to T. W. EVANS, 418 Eighth street, Philadelphia, Pa. ma1-lam3t

### Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]  
SAN FRANCISCO, Thursday, August 31.  
SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.  
City Tanned Leather, 1/2 doz. 26c/30  
Santa Cruz Leather, 1/2 doz. 26c/30  
Country Leather, 1/2 doz. 25c/28  
Leading French stocks have declined slightly.  
Kips are higher and in demand.  
Jodot, 8 Kil., per doz. 90 00/0  
Jodot, 11 to 15 Kil., per doz. 80 00/0 96 00  
Jodot, second choice, 11 to 15 Kil., per doz. 68 00/0 88 00  
Lemoine, 16 to 19 Kil., per doz. 88 00/0 96 00  
Levin, 12 and 13 Kil., per doz. 88 00/0 70 00  
Cornman, 16 Kil., per doz. 72 00/0 72 00  
Cornellian, 12 to 14 Kil., per doz. 63 00/0 70  
Ogerau Calf., 1/2 doz. 54 00/0  
Mercier Calf., 16 Kil., per doz. 60 00/0  
Robert Calf., 14 and 15 Kil., per doz. 35 00/0 40 00  
Common French Calf. Skins, 1/2 doz. 35 00/0 75 00  
French Kips, 1/2 doz. 1 00/0 130  
Eastern Kips, 1/2 doz. 60 00/0 75 00  
Eastern Best Stuffed Calf., 1/2 doz. 80c/2  
Eastern Best Stuffed Calf., 1/2 doz. 1 10c/2  
Eastern Calf. for Backs, 1/2 doz. 1 15c/2 125  
Sheep Roams for Topping, all colors, 1/2 doz. 8 00/0 72 00  
Sheep Roams for Linings, 1/2 doz. 5 50c/0 50 00  
California Russett Sheep Linings 1 75c/0 50 00  
Best Jodot Calf. Boot Legs, 1/2 pair 5 25  
Good French Calf. Boot Legs, 1/2 pair 4 50c/0 50 00  
French Calf. Boot Legs, 1/2 pair 4 00  
Harness Leather, 1/2 doz. 30c/0 37 1/2  
Fair Bridle Leather, 1/2 doz. 4 00 37 1/2  
Skirting Leather, 1/2 doz. 34c/0 37 1/2  
Welt Leather, 1/2 doz. 30 00/0 50 00  
Buff Leather, 1/2 foot 1 00 21  
Wax Side Leather, 1/2 foot 1 50c/0 29

### Special to Inventors.

All inventors who secure valuable patents through the SCIENTIFIC PRESS PATENT AGENCY are specially favored with a liberal notice of the merits of their inventions in the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS—two first-class weeklies, the most widely circulated of any on this coast, reaching the very best classes for the benefit of our ingenious citizens. In many cases we know that such notices have been worth more to patentees than the whole cost of obtaining patents. While we give the most able and experienced counsel to inventors, our terms are more favorable to Pacific Coast inventors than those of any other Agency in the United States, besides the benefit derived from having their inventions set forth rightly in the start by gratuitous publication in more than one highly reputable journal.

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### Democratic State Nominations.

FOR GOVERNOR: H. H. HAIGHT.....of Alameda.  
FOR LIEUTENANT GOVERNOR: E. J. LEWIS.....of Tehama.  
For Judges of Supreme Court: JACKSON TEMPLE, of Sonoma [for the Short Term], S. S. WRIGHT, of San Francisco [for the Full Term].  
FOR SECRETARY OF STATE: W. B. C. BROWN.....of Sacramento.  
FOR CONTROLLER: R. O. DEWITT.....of Siskiyou.  
FOR STATE TREASURER: A. F. CORONEL.....of Los Angeles.  
FOR ATTORNEY-GENERAL: JO HAMILTON.....of Placer.  
FOR SURVEYOR-GENERAL: JOHN W. BOST.....of Merced.  
FOR STATE PRINTER: JOHN T. BARRY.....of San Francisco.  
FOR SUFF. OF PUBLIC INSTRUCTION: O. P. FITZGERALD.....of San Francisco.  
FOR CLERK OF SUPREME COURT: THOS. LASPEYRE.....of Kern.  
FOR HARBOR COMMISSIONER: JOHN ROSENFELD.....of San Francisco.  
FOR CONGRESS—First District: LAWRENCE ARCHER.....of Santa Clara.  
FOR CONGRESS—Second District: JAS. W. COPPROTH.....of Sacramento.  
FOR CONGRESS—Third District: GEORGE PEARCE.....of Sonoma.  
7/2-2wbp

### THE QUARTZ OPERATOR'S HAND-BOOK,

BY P. M. RANDALL

REVISED AND ENLARGED EDITION.—1871.

#### CONTENTS:

APPLIED MECHANICS—Thin Cylinders, Thick Hollow Cylinders, Relative Grinding Capacity of differently formed Grinding Plates, Friction, Water Pipes, Velocity of Streams, Water Power, Water Wheels, Steam Power, ASSAY—Mechanical Assays, Dry Way of Assay, Humid Way of Assay, Assay or Analysis of Iron Ores containing Manganese, Assay or Analysis of Ores containing Gold, Silver, Copper, Lead, Iron and Sulphur. BEHAVIOR OF SOLUTIONS OF METALLIC OXIDES WITH REAGENTS—BLOW-TUBE—EXAMINATION OF MINERALS. GOLD—Treatment of Ore Containing Gold: By Smelting; By Amalgamation; By Chlorination. MILL-STAMP—SLIVER—GOLD. MINERAL VEINS—Species of, Formation of, Exploration of, Exploitation of. MIVES—VENTILATION. QUARTZ MACHINERY—Rock Breakers, Batteries, Mortars, Tappets, Cams, Cam-Shafts, Stamps, Dies, Serpens, Guides, Grinders and Amalgamators, Wheeler & Randall's Excelsior Grinder and Amalgamator, Separators, Wheeler & Randall's Manual Separator, Concentrators, Wheeler & Randall's Eureka Concentrator, The Wheeler and Randall Tabular Concentrator and Amalgamator, Retorts, Cold Retorts, Silver Retorts, Crucibles, Ingots Molds. REDUCTION AND CONCENTRATION OF ORES—DRY WAY. ROASTING—Heaps, Furnaces. SINTERING. SILVER—Ores of Silver, Treatment of Silver Ores: By Smelting; By Solution; By Amalgamation; Extraction of Silver from coarse Copper, Extraction of Silver from Copper Matte, Sodium Amalgam, Purification of Mercury, Quicksilvering of Copper-Plate, Cupellation of Gold and Silver, Refining of Gold and Silver.

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## Mining and Other Companies.

Being the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press early, and therefore, which is the very best, we can credit our subscribers.

## Bellevue Mining Company—Location of

works, Ophir District, Placer County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of August, 1871, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 31st day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23rd day of October, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees, T. F. CHONISE, Secretary. Office, 409 California street, San Francisco, Cal. a2-19

## I. X. L. Gold and Silver Mining Company.

Location of works, Silver Mountain District, Alpine County, Cal. Notice.—The annual meeting of stockholders of the I. X. L. Gold and Silver Mining Company, for the purpose of electing Trustees for the ensuing year, will be held at the office of the company, Pioneer Hall, 20 Montgomery street, San Francisco, California, at 2 o'clock, P. M., Thursday, Sept. 11, 1871. J. F. WILSON, Secretary.

## Jeans Lubricator Company—Notice is

hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of August, 1871, an assessment of Fifty (50) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 42 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 7th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 24th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, CALEB T. FAY, Secretary. Office, Room No. 7, No. 124 California street, a2-14

## Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of August, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, at his office, No. 221 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, R. H. CORNELL, Secretary. Office, 220 Clay street, San Francisco, Cal. a12-14

## Mina Rica Mining Company—Location

of works, Anbar District, Placer County, State of California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of August, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, No. 48 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 31st day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, H. E. O'NEILL, Secretary. Office, Room No. 2, third floor, No. 48 California street, San Francisco, California. a12-14

## Nevada Land and Mining Company—Location

of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko county, State of Nevada. NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 8) levied on the 25th day of July, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Washington Macks...	unissued	2,000	\$80 00
Henry R. Miller...	unissued	2,000	80 00

And in accordance with law, and an order of the Board of Trustees, made on the 25th day of July, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Wednesday, the 20th day of September, 1871, at the hour of 2 o'clock P. M., to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. WM. H. WATSON, Secretary. Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. a2-14

## North America Consolidated Mining Company—Location of works, White Pine Mining District,

County of White Pine, State of Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 5th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 2nd day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees, WM. H. WATSON, Secretary. Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. a2-14

## Ophir Copper, Silver and Gold Mining

Company—Location of works, Ophir, Placer County, Cal. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 22nd day of August, 1871, an assessment of Seventy-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 25th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees, R. G. BRUSH, Secretary. Office, 314 California street, San Francisco, Cal. a12-14

## Quail Hill Mining and Water Company—

Location of works, Quail Hill, Calaveras county, California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of August, 1871, an assessment of Twenty dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 31st day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 16th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, T. F. CHONISE, Secretary. Office, 409 California street (up stairs), San Francisco, California. a2-14

## St. Patrick Gold Mining Company.—Location

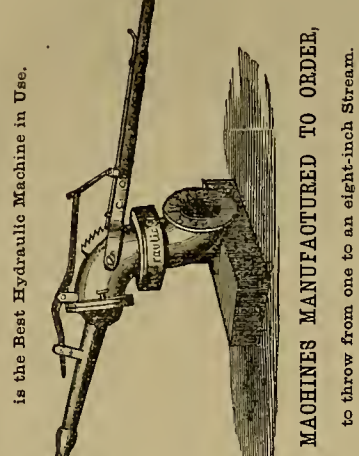
of works, Ophir District, Placer County, Cal. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of August, 1871, an assessment of five (5) dollars per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 397 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, T. F. CHONISE, Secretary. Office, 397 California street, (up stairs) San Francisco Cal.

## Tecumseh Gold, Silver and Copper Mining Company—Location of works, Gopher District, Calaveras county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of July, 1871, an assessment of five (5) dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 316 Kearny street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 4th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 24th day of September, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, F. J. HERMAN, Secretary. Office, 316 Kearny street, San Francisco, Cal. a2-14

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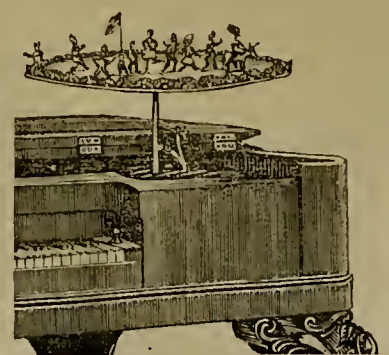
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## 7-30 GOLD LOAN

OF THE

## Northern Pacific Railroad.

RAPID PROGRESS OF THE WORK.

The building of the Northern Pacific Railroad (began July last) is being pushed forward with great energy from both extralimits of the line. Several thousand men are employed in Minnesota and the Pacific road. The grade is nearly completed 266 miles westward from Lake Superior; trains are running over 130 miles of finished road, and track-laying is progressing at the rate of one to two miles per day. Including its purchase of the St. Paul &amp; Pacific Road, the Northern Pacific Company now has 413 miles of completed road, and by September 1st will have increased to at least 560.

A GOOD INVESTMENT. We are now selling, and unhesitatingly recommend, as a profitable and perfectly safe investment, the First Mortgage Land Grant Gold Bonds of the Northern Pacific Railroad Company. They have 30 years to run, bear Seven and Three-tenths per cent. gold interest (more than 8 percent. currency), and are secured by first and only mortgage on the ENTIRE ROAD AND ITS EQUIPMENTS, and also on

23,000 ACRES OF LAND to every mile of track, or 500 Acres for each \$1,000 Bond. They are exempt from U. S. Tax; Principal and Interest are payable in Gold; Denominations: Coupons, \$100 to \$1,000; Registered, \$100 to \$10,000.

LANDS FOR BONDS. Northern Pacific 7-30's are at all times receivable at TEN PER CENT. ABOVE PAR, in exchange for the Company's Lands, at their lowest cash price. That is, in addition to their character as a first-class, prompt-paying Railroad security, these Bonds are in effect Land Warrants bearing a profitable rate of interest until exchanged for Homesteads, at TEN PER CENT. PREMIUM.

SINKING FUND. The Land Grant of the Road exceeds Fifty Million Acres, having an average soil of great fertility, in a climate that is simply unsurpassed.

The Trustees of the Mortgage, Messrs. Jay Cooke and J. Edgar Thomson, are required to devote the proceeds of all Land Sales to the repurchase and cancellation of the Company's Bonds. This immense Sinking Fund will undoubtedly cancel the principal of the entire issue of First Mortgage Bonds (now selling) before they fall due. With their ample security and high rate of interest there is no investment accessible to the people, which is more profitable or safe.

EXCHANGING U. S. FIVE-TWENTIES. In view of the Government's expectation soon to call for the surrender of its outstanding 5 per cent. Bonds, under the present movement for funding the debt at lower interest, many holders of United States Five-Twenties are exchanging them for Northern Pacific Seven-Thirties, thus realizing a handsome profit, and greatly increasing their yearly income.

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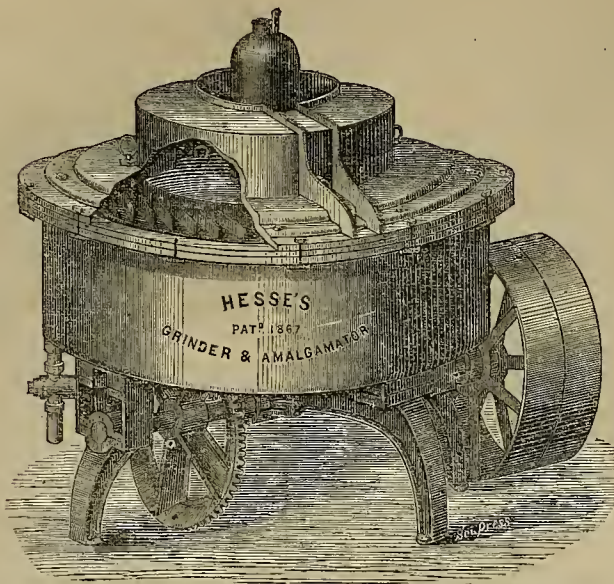
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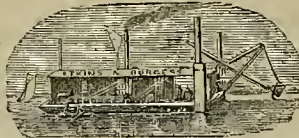
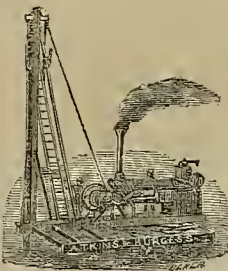
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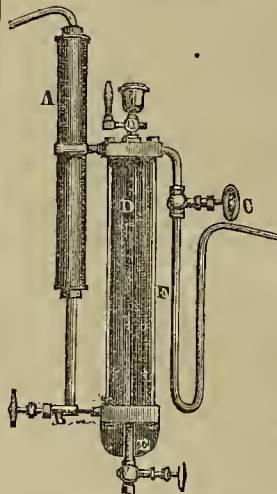
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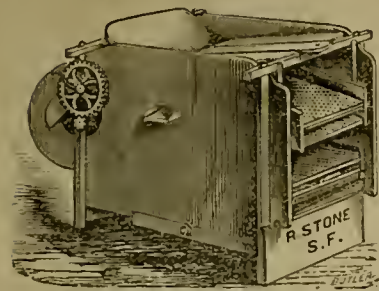
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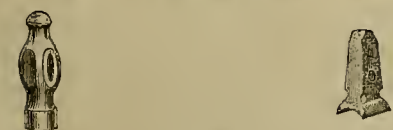
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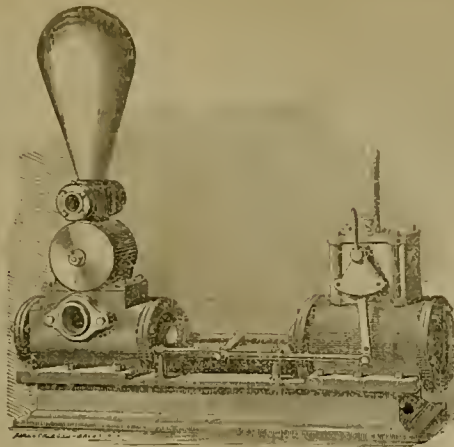
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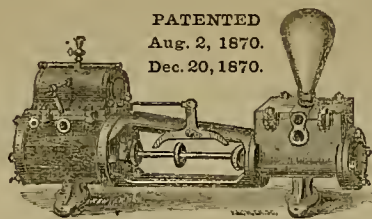
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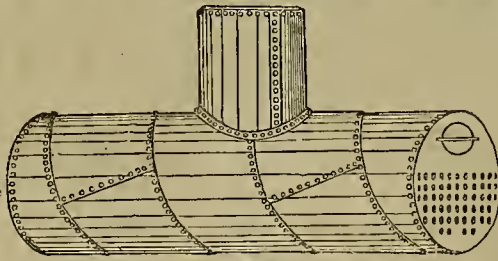
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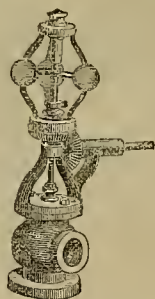
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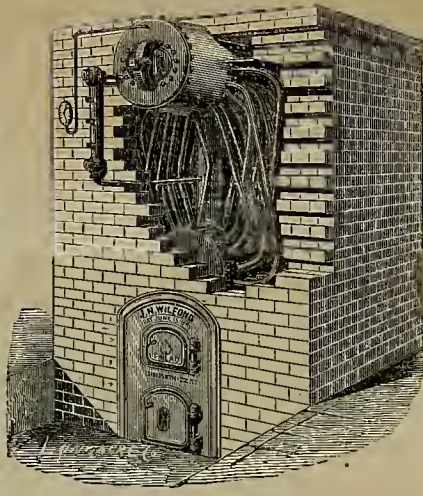
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SAN FRANCISCO, SATURDAY, SEPTEMBER 9, 1871.

VOLUME XXIII.  
Number 10.

## EDSON'S STEAM RECORDING GAUGE.

When scientific men attempt to investigate the causes of such boiler explosions as that, the details of which, are harrowing the feelings of the people of New York, one of the first questions after ascertaining that there was plenty of water in the boiler is "what was the real pressure in the boiler at the time of the explosion?" The engineers answer in this case, is "27 pounds." Honest, no doubt, he is, but still his eye was not upon the gauge at the moment when the iron parted, and we are still in doubt about it for want of direct testimony.

In each case we meet the same difficulty. We are told what the pressure was a few moments before the explosion, but what we want to know is the pressure at the last moment. Engineers who are in position and see that, have rarely, if ever, lived to tell the story. To this ignorance of the real pressure, more than any other thing, do we owe the mystery surrounding boiler explosions.

There is nothing that can be brought up in proof, to show that boilers have not been strained by over pressure at some previous time. During the whole life of a boiler except the few minutes while the gauge is under the eye of the owner, we are in almost as much ignorance of the real pressure carried, as people were in the days of Sargy's engine. To this ignorance we owe the continuance of such absurd theories as have recently been ventilated in the columns of the newspapers.

The real want is an automatic registering steam gauge, which shall make a continuous record of every change in pressure, so that at the end of the day, or at any time, we may be able to see every fluctuation that has taken place. The amount of information to be gained from such a record would surprise a person unaccustomed to examining the automatic records of such instruments as the barometer, thermometer and wind gauge.

Who of course feel more confidence in a machine which cannot go wrong, without showing us the cause of the error, than in the most accurate and conscientious observer.

The whole science of meteorology was placed upon a new foundation by the introduction of automatic registering instruments, and why may we not expect a similar advance in steam engineering, when automatic recording steam gauges are generally applied to steam boilers?

The object of the present article is to describe such a gauge and explain some of the things which may be learned from an inspection of these records.

Our first illustration shows a gauge adapted to record all variations of pressure occurring in a steam boiler, or any other vessel subjected to internal pressure.

The gauge is connected with the boiler by means of a pipe which allows the steam to act upon a series of corrugated discs arranged in pairs which are expanded by it. The motion thus produced is transmitted by a lever to a wheel, shown in the engraving. This wheel working in a rack moves the pencil, and with an increasing pressure makes a direct stroke upwards upon the paper. When the pressure falls the paper receives a forward motion and the mark of the pencil is consequently at an angle,—about 30 degrees from the perpendicular, the drum at the right hand side winding up and unwinding the paper from that upon the left. By the side of the pencil is a scale for convenience of

reading the pressure. A single roll of paper will last for months and may then be filed away for future reference. Above the paper is a dial and indicator hand, similar to that of an ordinary pressure gauge. By means of another attachment an alarm gong is sounded whenever the pressure exceeds the maximum determined upon when the gauge is locked. This gong continues ringing for nearly half an hour unless steam is lowered.

The kind of delineation made by the pencil is shown very well in the engraving. If the pressure fluctuates only a few ounces at a time up and down as it often does with each stroke of the engine, the notches of the line drawn by the pencil become so small as to be apparently a horizontal line.

We have before us, while writing, several of these rolls of paper or charts, which are very appropriately termed steam logs. The first is from the boiler of the steam-

longing the voyage, gave a peculiar form to the chart, prolonging that part made outside of the capes. The remaining voyages present nothing to arrest the attention, and we find from the ship's log-book that they were in every way like those we first examined. Such a log is an honor to both engineers and firemen, and gives the owners a comfortable series of security when it passes inspection at the office.

The next chart which we have is from the boiler of a steam cotton press, covering a period of nine weeks. The fires are banked at night, and steam for six nights in the week does not fall below 10 or 20 pounds. The working pressure is about 45 pounds. In this chart the middle of each day is marked by a distinct fall in pressure, showing where work stopped at noon. The greater length of the first or last part of the record for the day shows distinctly whether the greatest part of the

other and make a continuous line. The total rise and fall for both trips was only 5 pounds.

On the sixth trip the changes amount to as much as 7 or 8 pounds, caused, we find, by a change of hands and some other causes. On another trip we find more marked changes, and notice that heavy weather and poor coal have made a good card more difficult. Toward the end of the tenth trip, however, a series of marked movements make a decided change in the character of the chart. It appears that a leak in the boiler made its appearance, and gave constantly increasing trouble. In the next run it became evident that it was difficult to keep the steam up and the average working pressure fell from 30-35 lbs. to 20-25 lbs. and at times even less. The vessel was immediately put upon the dock for repair.

The whole voyage is presented in a tabular form. It can be compared in a moment and at a glance with any other. No interest in one direction or another can warp the indications. The gauge is free from personal feelings, which may influence written log books. The gauge cannot be tampered with in any way, for all its parts including the stop-cock, are secured by the lock which closes the whole instrument.

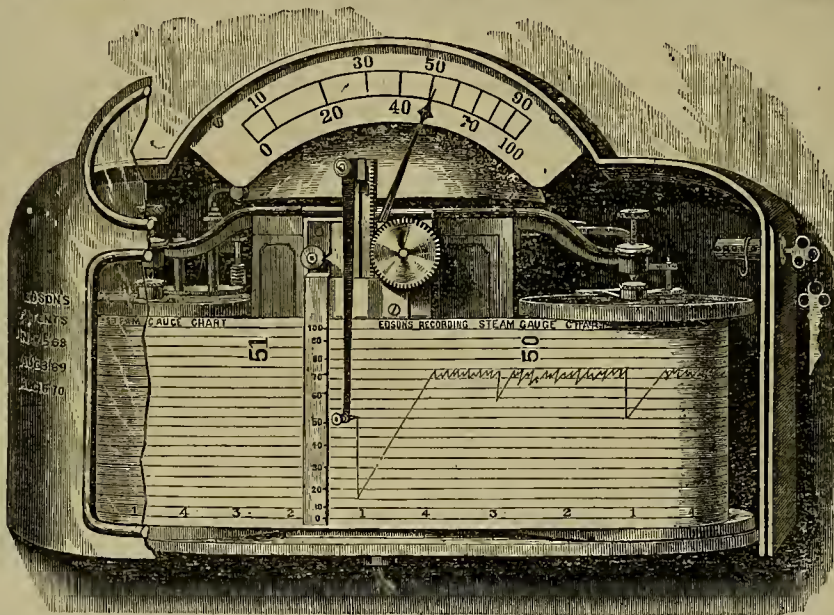
This gauge is manufactured by the Recording Steam Gauge Co., 91 Liberty street, New York City. It is worthy of note that these instruments are to be carried hereafter on all steam vessels in United States waters, according to the provisions of the new law.

## Mining in Arizona.

Mining in Arizona experience considerable difficulty in carrying on business on account of the Indians. The troubles on that score seem to be increasing instead of diminishing as was expected by the gradual increase of population. Miners have no chance to prospect on account of the danger of attending extended trips at any distance from the settlements. People in Arizona are not free to go where they please as in other countries for fear of molestations from Apaches. They have to stand guard over their stock and other property. It is necessary for escorts to go with every wagon and team on its journey, and the miners and prospectors are compelled to move around in parties, to protect themselves from their wily foes. It is to be hoped that these obstacles will shortly be overcome, and that the large extent of mineral country now lying idle and useless will be accessible to the enterprising pioneers who have settled in that remote territory.

## OUR LANDS AND THEIR CAPABILITIES.—

The proportion of land of California under cultivation, compared with the entire area, is very small. According to Land Office figures, there are 60,000,000 acres capable of bearing wheat, but only 5,000,000 have been taken up, and only 2,600,000 are cultivated. Of this according to the Surveyor-General, 1,263,000 were, in 1869, in wheat, giving 19,000,000 bushels, or fifteen bushels per acre. It follows that if, by means of increased facilities, 15,000,000 acres are in time got under wheat, the crop will be 180,000,000 bushels, or ten times the present average crop, which is raised without irrigation, in sections ill provided with transportation.



EDSON'S STEAM RECORDING GAUGE.

ship Wyanoke, plying between New York, Norfolk and Richmond, Va. It extends from the 29th to the 36th voyage inclusive. By an examination of it we learn many particulars relative to the boilers which even the engineer himself might not have understood. During the first and last part of each trip pressure is maintained pretty regularly at 35 to 40 lbs. In the middle of the trip it sinks to zero, showing the time spent at Norfolk. The average pressure on the run from Fortress Monroe to Norfolk and back is usually ten pounds less than at any other part of the round trip. This is probably accounted for by the still water—river and ocean navigation requiring more power. These characteristics are well preserved during each voyage.

On examining more closely, and comparing one chart with another, we find on the 31st and 32d voyages that the pressure reached its highest point, and yet there seemed to be great difficulty in keeping it there, and the moment the steamer got outside it fell to a point very much below the average. Here was something to be accounted for. Upon inquiry, it is found that the quality of the coal on these trips was not quite up to the average, which, together with some other little things, gave the reasons for these departures from the usual uniformity.

On another occasion a head wind pro-

work was in the morning or afternoon.

In the early part of the season there were several days in which no work was done, though steam was kept up as usual. This is shown by the record—the pressure rising and falling without a vibration. Saturday nights the boiler was allowed to cool and the pencil for the first time in the week reaches zero.

On one day work came in after the steam had begun to run down for the night. This required the fires to be opened, and of course we find a record made of this fact in the shape of a rise in the pressure just after the final fall for night had begun. We find that on another occasion the pressure was kept above 20 pounds all night; this was during the busiest season and only occurred once.

We might thus go on at a much greater length; but another log will be found of greater interest, from the steamship Virgo, running between New York and Savannah. This voyage usually takes three days out and five days return.

During the first trip out and back there was a constant movement of the gauge, amounting sometimes to as much as 8 or 10 pounds. Besides these we have certain other changes in pressure that probably occurred at the changing of the watch. During the next two trips the record is a marvel of accuracy. The fluctuations are so small that they literally run into each



# MECHANICAL PROGRESS.

## To Select Building Stone.

The following instructions for the selection of building stone, are taken from the *London Builder*, and are of great interest to all who may have anything to do with such work:

In selecting a quarry from which to get the stone best suited for the purpose, great care is required. Having first satisfied yourself that stone of the size required, can be obtained, and at a reasonable price, the next and most important step of all, is to find out if it is durable stone. Too much weight must not be placed on the assurance of quarrymen that the bed which is the cheapest for them to get at is the best and most durable—nor the best looking and easiest to work. It does not follow that because certain old buildings, in the neighborhood have lasted well, therefore all the quarries in the neighborhood produce the same stone.

It often occurs that a quarry on one side of a hill produces much better stone than that on the other. Specimens dressed up square, sent out by the quarryman or agent, are very dangerous things to form an opinion on, because what looks very well in small pieces is really often of an inferior quality; and a stone that would appear coarse and rough in a specimen would not do so when in the mass. Stones that rub up to a smooth face are often not so durable as those of a rougher texture.

To give an example, "best bed" Portland is much superior in color and texture to "brown bed" Portland, but far inferior to it in durability. Examine all the different beds in a quarry, noting the particular grain, texture and color of each bed, compare them with the buildings around, and if there be any old quarries near, with the face exposed, see which of the beds stand out the most, and show the old tool-marks, and consequently have yielded to the action of the weather least.

It frequently happens that the best stone is neglected, or only in part worked, from the cost of removing the rubbish with which it may be associated.

As an economical supply of stone in particular localities would sometimes appear to depend on accidental circumstances, such as the cost of quarrying, the degree of facility in transport, and the prejudice that generally exists in favor of a material which has been long in use; and as the means of transportation have of late years been greatly increased, it becomes essential to ascertain whether better materials than those which have been employed in any given place, may not be obtained from other, although more distant, localities, offering equally advantageous terms.

The relative facility with which good materials may be obtained in a district, is to a certain extent marked by the appearance of the towns and villages in it, the comparative cost of obtaining them being in general better shown by the character of the ordinary houses, than by that of the public buildings and large mansions, the stone for which may sometimes have been brought from comparatively considerable distance.

From the frequent practice, however, of selecting those stones which yield readily to the tool, and are hence commonly termed freestones, whatever may be their mineralogical characters, the most durable, and, therefore, eventually the cheapest, are far from being always employed. And it sometimes happens that we find the common cottages built of durable materials, while larger mansions and public buildings are not, the materials for the latter having been selected only because they were so readily worked up for ornamental parts, while those for the former may have been thrown aside in the same quarries because they yielded less freely to the tool.

**IMPROVEMENT IN LEAD PENCILS.**—Mr. Henry T. Cnshman, of North Bennington, Vt., has invented an improvement in lead pencils, which consists in providing them with a coating of flock, by means of which they are less liable to be lost, and more easily handled than those now in use. The pencils are covered with glue or other adhesive liquid, and then coated with flock of any desired color. This gives the pencil a coating which causes it to adhere to cloth, and thereby prevents its sliding or slipping from the pocket. This improvement does not add to the cost of the pencil, as the rough coating may be applied as readily and as cheaply as the ordinary varnish or polish.—*Sci. Am.*

## Selenitic Mortar.

For some months past, a series of careful and exhaustive experiments has been in progress at South Kensington, in order to test the value of a new kind of cement and mortar. This substance is the invention of Colonel Scott, R. E., and has been freely used in the construction of the French annexe. It has been named by Col. Scott selenitic mortar, and the process of production consists in mixing with the water used in the preparation of the mortar, a small quantity of sulphate of lime, in the form of either plaster of Paris, gypsum, or green vitriol. These substances having been intimately mixed, the lime is added and ground with the water or sulphate into a creamy paste. The mixture is prepared in the pan of an ordinary mortar mill, in which the water and sulphate are first introduced, and subsequently the lime. After the lime has been ground for three or four minutes, the sand, burnt clay, or other ingredients are added, and the whole is ground for ten minutes more. By this invention, ordinary lime can be at once converted into a species of cement mortar which sets rapidly and can be used for concrete work, or stuff for plastering at a cheaper rate than that made from lime in the ordinary way. From his experiments, Colonel Scott finds the use of sulphuric acid to give the best results, so that this substance is used in preference to plaster of Paris or gypsum, although the latter materials will answer for all practical purposes. Sufficient acid is contained in plaster of Paris to effect the necessary chemical change, and to prevent the lime from slaking, which in effect is the secret of the whole process. The lime by this means, is enabled to take twice as much sand as when slaked, its fiery nature being brought under control. Any lime can be made selenitic by Colonel Scott's process, and the more hydraulic it is, the better are the results obtained with it.—*Building News.*

## New Kind of Paper Hangings.

A Liverpool paper thus describes a new kind of paper hangings, recently introduced there from Switzerland. The effect must be very fine. "The general character of the design may be styled Florentine; the ground-work is white satin; the walls are divided into compartments by styles of a rich gold color, representing, with great accuracy, carved wood of intricate design; the panels are niches with drawings of deer, lions, swans, etc., each forming a complete picture in gorgeous borders of gilded ornaments and flowers, partaking somewhat of the Louis Quatorze style; the alternate panels comprise a species of flagree work, varied with drawings of flowers and gems, in which gilding is most tastefully and sparingly introduced, the whole being of the most exquisite design and execution. An exceedingly rich border runs round the top of the room, and one of corresponding design round the bottom part. From the judicious employment of French grays and other cool colors, the effect is not in the least gaudy, but at once rich and chaste. The introduction of this paper may be regarded as a new era in decoration, and will do much to relieve us from the sameness and insipidity which pervade even our best houses."

## Breakage of Watch Case Springs.

The breakage of the case spring is one of the most frequent failures which occur in hunting case watches, and is as disagreeable to the owner as to the repairer of the watch. The former has to pay a considerable amount, and the latter gets only a small profit by this repair, because he is very often obliged to put several springs in the watch before one will stand. To obviate this inconvenience, I tried to make the springs of brass instead of steel, and found that, if well hammered, this metal suits perfectly to the purpose. After this, I made all case springs in the following manner: I take a piece of brass wire, a quarter of an inch thick and two inches long, and bend an eighth of an inch, in the vice, to a right angle; then I hammer it alternately on four sides, till it gets a sparkling appearance. This is the sign of the right temper. Then I bring it to the same shape as a steel spring and make it fit in the case.

I will add, that I never saw a spring that was made in this way become weak or broken; and watch makers who will try this method will find that a brass spring is made in half the time that a steel spring is beside saving of files and other tools.—*Cor. Sci. Am.*

# SCIENTIFIC PROGRESS.

**TELESCOPES.**—Until within a very few years a telescope of 15 inches aperture was considered enormous in size. In 1867, Mr. Alvan Clark, of Cambridge Port, Mass., made one of 20 inches aperture. This at the time was the largest refracting telescope ever constructed. Since then, however, one of 24 inches aperture has been made in England; and not to be outdone, Mr. Clark is now engaged in constructing one of 25 inches, ordered for the Government observatory at Washington. Another of the same size has been ordered for the University of Virginia.

It is a rule in constructing telescopes to make the length to correspond in feet, to the number of inches in the diameter of the aperture,—hence the two which Mr. Clark is now building will be each 25 feet in length. Their cost will be about \$100,000 each, and although such an instrument weighs several tons, it is so nicely adjusted on being placed in position, that it can be moved with a finger.

Mr. Clark is the most successful telescope maker in the world, and yet he is self taught,—never having visited a manufactory. When advised by friends, in his early labors, to visit some establishment to learn the trade; he replied that he preferred to study it out. There is no doubt that the originality resulting from such "study," has been the cause of his wonderful success.

**ARTIFICIAL BUTTER.**—During the late siege of Paris many expedients were adopted to provide the necessities of life, and some of its luxuries. Among these the manufacture of artificial butter was quite successful, and one of the processes received the approbation of everybody, as being the best and most nearly like the real article. By that process the butter was obtained from the olive and margarine which are yielded by pressing animal, fatty substances, in the manufacture of stearine; the oily matter thus yielded having the same composition as butter. After being separated, it is subjected to a process which brings it to a consistency of butter, and is then bleached, after which the yellow coloring is added in the form of annatto or carrot juice.

**ENGRAVING BY ELECTRICITY.**—The efforts which have been made from time to time, with but poor encouragement, to engrave on metals by means of electricity, seem at last to have resulted in the attainment of practical results. An ingenious French mechanic has produced an invention by which a metal plate, upon which a design is drawn with a chemical ink of some kind, is slowly rotated with its face vertical, and several other similar plates, graded in size, are also slowly rotated by appropriate mechanism. The object of the invention is to engrave on the smaller plates the design traced upon the largest, on different scales of magnitude, which is accomplished by applying a cutting point to the face of each plate, and which is pressed against it by means of an electric current whenever a blunt point, applied to the large plate, encounters the ink in which the design is traced,—the cutting points being at other times withdrawn. The point presented to the first plate is merely a "feeler," which determines by electrical agency whether the ink is beneath it or not. If it is, the points are pressed into the surface of the other plates; if not, they are withdrawn and prevented from cutting. The feeler and the bruins must, of course, all follow a spiral track. This is crude, and can be made applicable to the reproduction of certain kinds of designs only, but it is considered a long step in the direction of practical success.

**MORE GIFTS TO SCIENCE.**—Mrs. Susan R. Higgin, a widow whose husband had acquired his fortune in the United States, has recently presented \$25,000 to the Sheffield scientific school, at New Haven, for the endowment of a professorship of Dynamic Engineering.

## THE PHILOSOPHY OF SLEEP WALKING.

A correspondent of the *Scientific American* gives the following theory to account for the habit of walking in the sleep:—"My observation has led me to believe that sleep walking is a habit of the system. I have noticed that children who are allowed to go to sleep on the floor or lounge, in the evening, and afterwards, at some regular hour, are aroused (of course only partially awakened), and sent to bed, will in time acquire the habit of sleep walking. I have no doubt that the man mentioned, who would get up and go to the cellar in the night for a drink of wine while asleep, had been in the habit of first going for it, in the night time, while awake. I presume but few have failed to notice how soon the mind, by dreams, will recognize a habit of waking at a particular hour for any purpose.

I think that the whole philosophy of sleep walking has its foundation in habit, acquired by disturbance at some regular hour devoted to sleep.

**NEW LIGHT FOR THE USE OF PHOTOGRAPHERS.**—Photographers have long been seeking for an artificial light, so readily available that the success of their manipulations may not be wholly dependent on the sun, and subject to the caprice of the clouds. The last attempt to find the much needed substitute is by digesting zinc in the iodide of ethyl, a process which yields a liquid substance inflammable by the mere contact of the oxygen in the air. By passing pure hydrogen (or perhaps ordinary illuminating gas,) through the fluid, the compound of zinc and ethyl will volatilize into the gas, and will yield, on combustion, a flame of extraordinary brilliancy and vivid whiteness of color.

It is said that the actinic effects of this light are inferior to those produced by the combustion of magnesium; but the steadiness of a flame from a gas jet will so far surpass any that can be obtained from a burning metal, even when the latter is of the highest purity, chemically obtained, that most photographers will doubtless give it the preference.

**PURIFICATION OF FATS.**—M. A. Boillet has devised a process for this purpose, which he has communicated to the French Academy. (*Comptes Rendus*, vol. 72, p. 36.) Suet, or fat of any kind, is beaten for three or four hours with lime water, the proportions being about half a gallon of lime-water to 2½ lbs. of fat; it is then allowed to cool. As soon as the fat is sufficiently set, it is transferred to a linen or flannel bag, and the water and oleic acid squeezed from it by gradually increasing pressure, in a hydraulic press, or otherwise. He states that fatty matters thus treated, lose all bad smell, and acquire remarkable whiteness and hardness, after standing a few days. If re-melted in water, acidulated with sulphuric acid, acetic acid, or vinegar, a fat is obtained which, he says, is "perfectly" purified, and can be applied to all the purposes for which the best fatty substances are employed.

**TO RENDER GUN COTTON SAFE.**—Dr. L. Bleekrode, while recently engaged in some experiments, wherein he tried to ignite gun-cotton by the electric spark, thought to facilitate the explosion by wetting it with an inflammable liquid, such as bisulphide of carbon. To his surprise he found that it was only the bisulphide that was set on fire; and that it burned away, leaving the gun cotton intact. He repeated the experiment with ether, benzene, and alcohol, igniting the several liquids with a flame. In each case the gun-cotton remained unconsumed. Dr. Bleekrode therefore suggests that gun-cotton might be safely kept under a layer of benzene; as, if the liquid happened to be ignited, no explosion would take place, and the gun-cotton would be quickly rendered fit for use by a brief exposure to air.

**IMPROVED LIQUID FOR GALVANIC BATTERY.**—Mr. Victor Barjon has devised a new battery liquid, formed by mixing a solution of bichromate of potash with a little lime, and with sulphuric acid. He puts two lbs. of bichromate of potash into a gallon of boiling water, and lets the solution cool down to 68°, and adds two ounces of lime. After stirring, he adds sulphuric acid until the gravity reaches 35° Beaumé. Then, having stirred the whole, he lets it stand for twenty-four hours, when it is ready for use.

**STAINS FROM ACIDS** can be removed by spirits of hartshorn diluted. If not removed by first application repeat the process. Afterwards rinse off with water.



CORRESPONDENCE.

SALT LAKE CITY, U. T.

BY OUR OWN TRAVELER.

EDS. PRESS:—I find many changes in Salt Lake City since my last visit. "Times" are lively, and business of all kinds, especially of those branches connected with mining interests, is flourishing. I see many familiar faces from Nevada and all parts of the Pacific Coast, most of them evidently attracted here by the fame of the wonderful mines, and on the look out for a revival of the days of "49". Many branches of industry are represented in the wooden ware factories, woolen and paper mills, steam wood working mill, etc. Education is receiving a great deal of attention both from Mormons and "Gentiles"—the Episcopalians and Methodists each having a seminary under their exclusive control. The Catholics, Methodists and Episcopal denominations are permanently established here now, and for the latter sect a fine \$40,000 Gothic edifice, is in process of construction.

There are four hotels, the Salt Lake, Townsend, White and Revere Houses, together with numerous restaurants and boarding houses. The Salt Lake House,—capable of accommodating some 200 boarders, is located on the principal business street of the city. The Salt Lake Tribune and Mining Gazette, by calling attention to the resources of the Territory, has materially assisted in the rapid development of the mines now attracting so much attention. Of the other two daily papers, the Deseret News and the Daily Herald, the latter is the official organ of the Mormon Church, and has been published for the last 16 years as a weekly. A type foundry is attached to the office of this paper.

The mineral producing qualities of the Territory are in no wise better proven than by the briskness in the business of crushing and sampling ores. Two new enterprises of this kind have lately been started, one of which is the

Salt Lake City Sampling Mills.

Messrs. Geo. J. Johnson & Co., the proprietors have a piece of land four blocks from the R. R. depot embracing an area of about 15,000 square feet. A 10-horse power engine is in use. They are fitted with a Forsman Iron Clad Stone mill, and one of Brodie's crushers, made by Hinkley & Co. of San Francisco. Ores are bought by these gentlemen that will average from \$80 per ton, and upwards. The dimensions of the building are 50x46 feet. In buying silver or gold ores the assays are all made by scortification.

I called on Mr. J. R. Nichols who is now experimenting with Kroms' process of concentration, at Mr. Jennings' old tannery. This gentleman informs me that he has ordered six of Kroms' concentrators from the East, which he expects shortly. These large sized machines will run through from 20 to 30 tons of rock in 24 hours, and they will cost from \$800, to \$1,000 each, delivered in Utah. They weigh 1,200 lbs., are 4 feet high, and require a space of 3x6 feet. I saw one of the small sample machines in operation. The ore in passing through is freed of a large proportion of gangue matter, materially lessening the heavy expense of transportation. By means of these machines, ores falling below \$50 per ton can be concentrated and shipped at a profit. I was shown plans of the buildings soon to be erected for the purpose of carrying on this enterprise. At the works of

H. S. Jacobs,

Is a 16-horse power stationary engine, Starkey's patent, which only occupies a space of 3x6 feet, and gives motion to a Dodge crusher and a re-grinding machine. The building is 86x30 feet, and fitted up with many conveniences for facilitating labor.

Seven Furnaces

Are now running successfully in the Territory and many new ores are in course of construction. It is estimated that there are now upwards of 10,000 persons engaged in mining enterprises, about one-half of them being prospectors. I see hundreds of miners from Colorado, Nevada, California, and all parts of the Pacific coast, which speaks well for the prospects of the country. Mills and furnaces in San Francisco, Chicago, Omaha and Newark, are

supplied with ore from here. Large quantities are shipped to Swansea, England, the freight being only \$7 per ton from N. Y., and returns are given in 60 days.

Reid's large building, on Main street, is the head-quarters of mining operators and many well known men have their offices here,—including Messrs. Gould, of S. F.; S. W. Howland & Co., crushers and samplers; C. L. Stevenson C. & M. engineer, and Woodhull Bros.

In the windows are displayed fine collections of Utah ores, and the place presents a lively appearance between the hours of 10 and 4, reminding a San Franciscan forcibly of California street. The town is filled with transient visitors, who desire to see the "City of the Saints" and its numerous adjacent, and already famous mines. The people of Utah are now constructing a railroad to run south through the Territory which will be some 75 miles long. They intend running branch lines to the foot of the cañons, in order to convey ore to Salt Lake City for shipment, and bring coal from the lower part of the Territory for the use of the smelting and reduction works. This road will be controlled by the Mormons, which shows that, at least, they desire to give encouragement to mining and railroading. There is a line of 6-horse Concord coaches running between Salt Lake City and Lake Point, connecting with the steamer "City of Corinne," by which tourists are enabled to see the wonders of the scenery of this "Dead Sea of America." The time occupied in the run across, in both lake and river is only eight hours.

The Utah Central R. R. received for the week ending July 23d, 2,464,064 lbs. of freight, and shipped 1,605,419 lbs. Of this shipment 1,206,000 lbs. was bullion. Messrs. N. P. Woods & Co., forwarding and commission merchants, informed me that they shipped East and West, between May 15th and July 26th, 12,269 sacks of ore, weighing 1,153,867 lbs. and 10,970 hars weighing 1,223,300 lbs.

S. W. Howland & Co.,

Crushers, samplers and purchasers of ore, say that they shipped during the months, April, May and June, from their mills,

8 car loads of	20,000 lbs. each	silver ore
27 " "	20,000 " "	bullion "
21 " "	20,000 " "	copper "

Part of the silver and bullion went East and all of the copper came to San Francisco.

I learn from the Tribune that the mines and furnace belonging to Messrs. Bateman & Buell in Bingham Cañon, having been reported on favorably by Captain Nancarrow and Mr. Henry Sewell, has been sold. The property was transferred to Capt. Nancarrow as representative of an English Company called the Utah Mining Co. The amount paid for this property was \$450,000 coin. It is a large and important transaction for Utah, and shows that the attention of English capitalists has been successfully called to the mines. W. H. M.

Discovery of Placer Diggings in the State of Durango.

Dr. T. M. Rapp, an American resident of Santiago Papasquieira, has struck good diggings in a gulch near Escohar. Dr. R. is an old Californian, went to Frazer River, Kern River, Salmon River, Confederate Gulch, Reese River, White Pine, and numerous other stampedes, and finally settled down as a physician in this charming valley of Santiago,—as a physician with a practice worth \$5,000 to \$10,000 per year.

The old hankering, however, returned this summer; and, so shouldering his pick, shovel and pan, off he started for a prospect. The details (authentic) are not yet at hand, but a stampede is. I saw the result of three pans—in fact, assayed one. It was fine shot gold, and was worth \$3.26, 855 fine. As matters come to light I will report them.

Remarkable Yield of Silver.

At Utopia a body of ore was struck in the mine; \$500,000 was taken out in 22 days, with 10 men only. The ore is Pyrargyrite (Dark Ruby), and weighed 27 tons [?]. The deep crimson color was superb. The owner who had worked it for years with discouraging results, sold it only three days before for \$3,000 cash, to one Carrasco, a merchant of Cosala.

The quicksilver mine at Canelas has one furnace completed, and produces 16 flasks per day. Bodies of cinnabar are struck very repeatedly, and a larger furnace is to be erected immediately, under the direction of an American formerly of New Almaden, Cal. Very truly yours,

VALVERDE.

THE HORSEMAN.

ORIGIN AND HISTORY OF THE PERCHERON NORMAN HORSE.

EDITORS PRESS.—Believing that the knowledge of this valuable race of horses, and still more of its existence in the United States, is confined to a small number of persons, I have thought it would be not uninteresting to your agricultural readers to give a brief account of the animal.

Le Percho, from which the animal derives its name, is a district in that portion of France which was formerly known as Normandy, and in which the breed of the Norman horses has been most highly cultivated, and where it exists in its most perfect form and most improved condition. By some means, somewhat anomalous and at variance with the general experience and principles of breeding, this breed, which must in its origin have been a cross, has in the process of many ages become a family, perfect in itself, capable of transmitting its qualities and reproducing itself, like to like, without any loss of energy or characteristics by breeding together mares and stallions of the same race.

The remarkable purity of the race, says Herbert, is attested by the certainty with which the stallions transmit to their progeny, begotten on mares of a different race, their own characteristics, and the high degree in which the offspring of the mare, bred to horses of superior class, retain the better qualities of their dams. For it appears to be a certain rule in breeding, that the purer the blood, and the higher the vital energy and vigor of either parent, in the greater degree does that parent transmit its properties to the young; although the certain transmissions of the larger portions of those energies is always on the stallions side, and it is only in the longer retention of an inferior proportion of her qualities by the progeny, that the better blood of the dam can be traced when bred to an inferior sire. When bred to a purer blooded stallion than herself, the more pure blood the mare herself has, the more strongly will her own marks descend to her progeny, and the less will they be altered or modified by those of the sire.

Now, the Percheron Normans are clearly a pure race *per se*; we do not mean by the words, a thorough-bred race, but a race capable of producing and reproducing themselves *ad infinitum*, unaltered, and without deterioration of qualities, by breeding like sires to like dams, without infusion of any other blood, just as is done by Durham, Ayrshire, or Alderney cattle, by setters, pointers, greyhounds, and, in a word, by any and all animals of distinct and perfect varieties of the same species.

The only remarkable thing in this case is, that such should be the fact, under the circumstances of the Percheron Normans being originally—as they are beyond a doubt—the product of a cross, although a most remote cross in point of time.

The original Norman horse, now nearly extinct, which was the war-horse of the iron-clad chivalry of the earliest ages of William the Conqueror, and Richard Cœur de Lion, is thus accurately described by the importer of the Percherons into New Jersey, Mr. Edward Harris. They average, he says, (and we are personally cognizant of his accuracy), full sixteen hands in height, with head short and thick; wide between the eyes; jaws heavy; ears short and pointed, well forward; neck very short and thick; mane heavy; shoulders well inclined backward; back extremely short; rump steep; quarters very broad; chest wide and deep; tendons large; muscles excessively developed; legs short, particularly from the knee and hock to the fetlock, and thence to the coronet. It was soon found, even while complete armor was in use, that these enormous, bony Normans, which are still, though deteriorated, the ordinary, heavy draught horses of France, had not sufficient speed to render the cavalry charge effective, or sufficient blood to give spirit adequate to the endurance of long-continued toil.

At the same time the Andalusian horse, which in its highest form, was a pure barb of Morocco, imported into Spain by the Saracen Moors under Tarik, who has left

his name to the rock of Gibraltar, and in its secondary form, a half-bred horse, between the African barbs and the old Spanish horse, which had long before received a large tincture of oriental blood from the Numidian chargers of the Carthaginians, who so long occupied that country, proved, in its unmixed state, too light for the enormous weight of a caparisoned man-at-arms, or, if occasionally equal to that, too costly to be within the means of any but crowned heads.

The bone and muscle, and much of the form of the Percheron, come from the horse first described—the old Norman war-horse; and while he gets his spirit action from the Andalusian, docility comes from both sides.

On the expulsion of the Spaniards from the Northern Provinces, the supply of Arabian stallions was cut off, and, since that time, in the Perche district of Normandy, their progress has doubtless been bred in and in; hence the remarkable uniformity of the breed, and the disposition to impart their form to their progeny.

A. WILSEY.

Horse Work.

At a meeting of the British Association at Dublin, Mr. Charles Bianconi, of Caspol, read a paper relative to his extensive car establishment, after which a gentleman stating that at Pickford's, the great English carrier's they could not work a horse more than ten miles a day, wished to hear Mr. Bianconi's opinion on the subject. Mr. B. stated he found by experience he could better work horses eight miles a day for six days in the week, than six miles for seven days. By not working on Sunday, he effected a saving of 12 per cent. Mr. Bianconi's opinion on this point is of the highest importance, for he has over 900 horses working sixty-seven conveyances, which daily travel 4,244 miles. It is the result of forty-three years' experience.

HOW TO BREAK COLTS TO LEAD.—The Western Rural gives the following hints for breaking colts to lead. "Take a piece of common rope, six or eight feet long; make a noose on one end large enough to slip easily into the colt's mouth. Then take the other end and pass it over his neck, through the noose on the under side of the mouth, and you are ready to begin operations. Step around to one side of the animal, a few feet away, and command him to move; at the same time give a sudden pull on the halter. Continue in this manner, giving a sudden pull sideways, but never forward, every time the colt refuses to move, and gently pat him on the neck when he obeys. By this method a colt may generally be broken to lead in a couple of hours; after this any kind of halter can be used. A colt broken in this manner will not learn to pull back on the halter, as many do, when the method of pulling forward on the halter and beating to make them lead, is resorted to, as is often the case."

HOW TO DRIVE A YOUNG HORSE.—We find the following floating, and do not know its paternity, but it is good advice: "In teaching a young horse to drive well, do not hurry to see how fast he will trot. Keep each pace clear and distinct from the other; that is, in walking make him walk, and do not allow him to trot. While trotting be equally careful that he keeps steady at his pace, and do not allow him to slack into a walk. The reins, while driving, should be kept snug; and when pushed to the top of his speed, keep him well in hand that he may learn to bear well upon the bit, so that when going at a high rate of speed he can be held at his pace; but do not allow him to pull too hard, for it is not only unpleasant, but it makes it often difficult to manage him."

SADDLE OR HARNESS GALLS.—These are bruises caused by friction and moisture, occurring most frequently in warm weather; the parts are rubbed raw, and sometimes bleed. The treatment is simple and effectual. Bathe the parts several times a day with one pint of water and half a pint of tincture of myrrh.

WHAT A HORSE EATS.—A horse weighing from 1,000 to 1,200 pounds will eat about 6 tons of hay in a year, and 3½ tons of corn stalks or oat straw, and 2½ tons of corn or oats, would be about equivalent for the amount of hay.

OLD HORSES.—Aspen of horses forty-two years old still in splendid condition; are daily seen in the streets of Watertown, N. Y.



# MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**GLOBE.**—Montana *Miner*, Aug. 26th: In the shaft 18 ft. down, this mine is developing a body of ore, which carries \$70 in silver to the ton, and the copper in every ton is worth \$50 on the dump. They have four veins, and the quantity which may be mined is fast increasing.

**TARSHISH.**—While absent yesterday Prof. Rickard, left a fine specimen of ore, which we should judge would assay \$250 per ton, with the following notes: "Tarshish—150 ft. level—large deposit—hard equal to soft."

The mill of the M. & N. W. Co. is now nearly completed. Crushing for brightening the pans and getting all in order, will commence next week.

The start for a new mill at the foot of Main st. is encouraging. The building is to be, of similar size and shape to that nearly completed for the M. & N. W. Co.

### BUTTE COUNTY.

**IN THE RIVER.**—Oroville *Record*, Sept. 2d: There are one or two extensive flumes on the North Fork, and other branches of the Feather. Nisson & Co. have a wing dam in the main Feather near the old Cape claims, at the mouth of Morris' Ravine, which they are now successfully working.

### CALAVERAS COUNTY.

**RICH ROCK.**—Calaveras *Chronicle*, Sept. 2d: An ounce of quartz taken from the Polomo mine yielded \$2. This is at the rate of over \$6,000 per ton.

**COMMENCED CRUSHING.**—The mill leased by the proprietors of the old Foot & Thompson quartz mine, near Rich Gulch Flat, is in operation crushing rock taken from the lead.

**PETTCOAT.**—Work has been resumed upon the Petticoat mine, at Railroad Flat. Parties in Virginia City have furnished means to sink the main shaft 300 ft. deeper, which will thoroughly prospect the lead.

**GOOD YIELD.**—A recent clean up at the Whisky Slide mine, netted 106 ozs. of retorted gold, the product of 125 tons of rock.

**ENORMOUSLY RICH GRAVEL.**—Bates & Co., whose claim is located about a mile from town, in Chili Gulch, have recently struck the lead and found it rich beyond all comparison. They took out 4½ lbs. of gold in as many days, the product of 4 men's labor.

### EL DORADO COUNTY.

**MINE SOLD.**—The Placerville *Republican* says that an English company have purchased the "Pacific" quartz mine.

### INYO COUNTY.

**RUNNING.**—Inyo *Independent* Aug. 26th: The three furnaces reducing the Cerro Gordo ores are in full blast.

### LOS ANGELES COUNTY.

**BULLION.**—Los Angeles *News*, Sept. 2d: 200 hundred bars of bullion from the Union works arrived at the Depot yesterday. Aggregate weight 16,511 lbs.

**TIGER ORE.**—Between 5 and 6 tons of this ore assayed, gave as high as \$1,028 per ton.

**LOS ANGELES**, Sept. 1st—by telegraph.—The Los Angeles Foundry is at work on a 20 stamp quartz mill for the Piute Mining Co. at, or near Sageland.

### MARIPOSA COUNTY.

**FERGUSON MINE.**—Mariposa *Gazette*, Sept. 1st: This mine on Main river purchased two months ago by an English Co., for \$100,000 cash, looks as promising as ever.

**MILL STOPPED.**—J. Hite's quartz mill at Hite's Covo was compelled to stop last week on account of the scarcity of water.

**AELEKEMA & HART** struck a rich pocket last week in their mine at Sebastopol.

### NEVADA COUNTY.

**LOCATION.**—Nevada *Gazette*, Sept. 1st: M. McDonough and others have located 20 claims of 100 feet each, on Randolph Hill, Grass Valley Township, for mining purposes.

**ATTEMPT TO ROB SLICES.**—Nevada *Transcript*, Sept. 5th: On Thursday night an unsuccessful attempt was made to rob the slices of the Union Mining Co. at Relief Hill.

### PLACER COUNTY.

**JUNCTION DIVIDE M. C.**—Auburn *Herald*, Sept. 20th: This Co. have opened a quartz ledge 5 ft. thick, on a bench on the west bank of the North Fork of the American river, and about 300 ft. above the bed of the stream. The quartz looks well and it

has every indication of being a rich mine. **RATTLE SNAKE ITEMS.**—Miners are all busy, except the Kehoe Co., who talk of putting a flume in.

### PLUMAS COUNTY.

**GOOD YIELD.**—Quincy *National*, Sept. 2d: The Eureka mine, since the mills were started the present Summer, has yielded the sum of \$105,000.

### SOLANO COUNTY.

**THE QUICKSILVER MINES.**—Vallejo *Chronicle*, Sept. 2d: It is expected that the smelting works will be completed next week, and the smelting of ore at once commenced.

### TULARE COUNTY.

**DITCH ENTERPRISE.**—Visalia *Delta*, Aug. 31st: The old Spangler Ditch, running out of Kings river, has been purchased by the people of the Lone Tree settlement, for the sum of \$3,000 in paid up stocks, and a company with a capital stock of \$10,000, are about to enlarge the ditch to a width of 22 ft.

### TUOLUMNE COUNTY.

**KINCAID FLAT TUNNEL.**—Sonora *Democrat*, Sept. 2d: Work is being pursued day and night by a force of 6 men who have made from 9 to 10 ft. each week for sometime past. This Co. have made an open cut of 250 ft. driving their tunnel through solid rock 1,300 ft. at an expense of about \$60,000. They have 420 ft. more to run to reach the sink of Kincaid Flat, which will require another year.

## Nevada.

### COPE DISTRICT.

**MINERAL HILL.**—Elko *Independent*, Sept. 2d: The grade of the new mill is nearly completed, and the other one will start up in a short time; and will surpass its usual yield of \$120,000 to \$130,000 per month. The Austin Co. is making every effort to construct a mill to crush the ore which is now on the dump and being daily taken from the mine.

### EUREKA DISTRICT.

**BIG STRIKE.**—Eureka *Sentinel*, Aug. 31st, P. H. B. Smith has uncovered a body of ore in the Otho sufficient to astonish any man who has ever been through the mine. From what was a good mine, worth \$20,000 to \$30,000, it has taken rank as a first class one.

**STRIKE IN THE CHAMPION.**—Yesterday morning there was uncovered at the lowest point in the incline, a body of yellow and black carbonate ore, which assays as highly as any strike discovered. The ore body from the surface seemed to have divided at a depth of 75 feet, the upper stratum ran towards the old Champion, and, being convinced that there was a second stratum below, the supt. ordered that a shaft be sunk. Two days have developed a second wide and rich body of ore.

**STARTER.**—The new Phenix furnace has been started up.

\$125,000 in Gold coin arrived yesterday to make the first payment on a mine.

**THE LARGEST BAR.**—The Richmond Co. shipped yesterday one bar of bullion weighing 1,813 lbs.

**ACTIVITY.**—For the last few days unusual activity among mining speculations is noticeable, and quite a number of small sales have been effected.

**FISH CREEK DIST.**—Water has been discovered near the mines at a depth of 25 ft.; 200 men employed.

**DIAMOND DIST.**—The vein on the Mammoth is 6 ft. in width and can be traced for a long distance. About 100 tons of good ores are on the dumps.

### ELY DISTRICT.

**BULLION SHIPPED.**—Ely *Record*, Aug. 31st: W. F. & Co. shipped since our last issue, bullion valued at \$36,299.37, and for 4 days ending Aug. 27th, \$52,618.17.

**HIGHLAND DIST.**—H. Mathey has an incline down 100 ft. in his mine, ore of a high grade is being taken out. The "Seven-Thirty" claim shows a body of ore of extraordinary richness, assaying from \$150 to \$750 per ton. The pay ore is about 4 ft. in width. The Sovereign claim near the Seven-Thirty, shows a ledge about 8 ft. in width and assays from \$70 to \$300 per ton. On the same hill is the Dana claim, equal to the Sovereign in size and richness. The Othello, is 5 ft. in width, assaying from \$60 to \$395 per ton. The Silurian claim is 4 ft. in width, pulp assay showing \$173 per ton. The Hamburg ledge is down 20 ft. with 14 tons of rich ore on the dump. Arizona claim, one of the largest ledges in the Dist. has 100 tons of high grade ore on the dump. The Lyell, shows a ledge 5 ft. in width, all mineral.

**MAIN STREET GOLD MINES.**—Work on these mines continues briskly. The ledge increases in width as depth is attained, and the prospects continue flattering; assays made from time to time show an increase

in silver but still a preponderance in favor of the gold. The ground in the vicinity has all been located and recorded.

### HUMBOLDT.

**BULLION SHIPMENT.**—Unionville *Silver State*, Sept. 2d: The Arizona mine shipped through W. F. & Co., since our last issue, \$6,639.

**THE BLUE LEDGE** in Golconda Dist. near the old Cooley ranch, is to be sold for \$20,000. The mine has a well defined ledge, averaging 2 ft. in thickness, of excellent ore.

**SEMINOLE Co.**—Some little time since they struck a vein composed principally of decomposed quartz about 4 ft. wide; they have continued to follow this vein with good progress. No great change occurred until within a few days, but now they have a much better defined strata of quartz, from top to bottom of drift, lying close to the north-east wall, while the country rock seems more settled.

**MINE SOLD.**—Winnemucca *Register*, Sept. 2d: M. S. Thompson and others, of Mill City, have made a sale of a mine situated about 40 miles north-east of Wadsworth, near the head of Long Lake. We have not learned the amount paid, but know it was a cash sale. The ledge is said to crop 2,500 ft. with a uniform width of 15 ft.

### WASHOE.

**BULLION.**—Gold Hill *News*, Sept. 1st: The Bank of Cal. at Virginia, yesterday shipped \$15,000, principally from Crown Point and (same paper Sept. 3d.) \$44,000 in silver bars from the Yellow Jacket and Chollar-Potosi mines.

The Bank of Cal. yesterday shipped \$22,600 in silver bars, principally from Crown Point and Yellow Jacket.

Hale and Norcross M. C. have received a new and powerful engine, soon to be set up at their works.

**CHOLLAR-POTOSI** folks are taking out 100 tons per day, assaying \$40 per ton. Considerable prospecting is going on. The Sutro tunnel was in yesterday 2,378 ft. The ore breasts on the 200-ft. level of the Crown Point are improving. The Uncle Sam mine is to be pumped out to furnish water to the mills along Gold Cañon. The pumping machinery is being put in order. Within the past few weeks promising discoveries have been made 4 or 5 miles south of us, in Devils' Gate Dist.

**CALEDONIA MINE.**—The body of ore on the 400-ft. level is looking exceedingly well. The ore is high grade, running from \$60 to \$80 per ton.

**BELCHER.**—The ore body at the 100-ft. level proves to be extensive and rich.

**YELLOW JACKET.**—The cross cut east at the 1,100-ft. level is in good ore, showing the new streak to be 20-ft. wide.

**DANEY.**—The main shaft is down 350 ft. and good progress is made in the south drift.

### WHITE PINE.

**BULLION FORWARDED.**—*News*, Aug. 26th: W. F. & Co. shipped to N. Y. from the Treasure Hill M. & M. Co., 4 bars bullion, 452 lbs., value \$5,874.17.

Same paper Sept. 23: The bullion yield for the week, with a number of stamps idle, will foot up \$55,850.48. For the month ending 31st ult., the shipments were \$183,119.11.

**MUKWONAGO.**—There are 3 shafts upon the mine from 30 to 125 feet in depth, in 2 of which good ore appears with every indication of striking it.

**GREAT WESTERN.**—Working lower and upper shaft day and night.

**EAST SHEBOYGAN.**—Working six men. Breasting ore from tunnel and raising ore from shaft, also driving a tunnel further north to tap the vein at that point. About 40 tons of ore on the dumps. A blacksmith shop has been erected. A large force will be put on, and work pushed ahead day and night. The ore breast is now at least 30 feet wide.

**NORTH AURORA.**—Good headway is made sinking the new shaft. The Lady's Chamber is 37 ft. long, 31 wide and 32 high. A mass of high grade ore is in sight in the bottom of the chamber; in fact, it extends all over it. Extracting about 24 tons every 24 hours.

**WARD BEECHER.**—The whip shaft is down 50 ft., and looking well. The two shafts (in the Ward Beecher and North Aurora) are down about 44 feet each.

**SOUTHERN CROSS.**—This mine, situated in Mahogany Cañon, is showing a large body of good ore. Work will be resumed the coming week with two shifts.

**GENERAL LEE.**—The north-east drift, 100 ft. in. is following a spar seam, disclosing a large body of ore. Working 6 men.

C. T. FAX.—The main tunnel is 200 ft.,

and shaft from main tunnel down 100 ft. Lower levels from the bottom of the shaft extend 150 ft., from which a good quantity of high-grade ore is taken out. About 250 tons of ore on the dumps.

**SOUTH AURORA.**—A new tunnel was started this week to tap the main body of ore 60 ft. deeper than former workings.

**GENESEE.**—Has a fair sized vein of ore, some of it of very high grade. Work is carried on with a small force of men at present.

**SILVER WAVE.**—A true vein has been found pitching East, with a well-defined foot wall going down. Working 8 men.

**MAMMOTH.**—Large amount of low-grade ore in sight.

**PORTAGE.**—Working two shifts. Shaft down 70 feet and ore improving.

**BEECHER CONSOLIDATED.**—Shipping ore constantly to Manhattan mill.

**VIRGINIA.**—Work will be resumed on this mine in a few days.

**FEATHERSTONE.**—Have not visited this mine yet, but understand it is looking well.

**SILVER WEDGE.**—Shows a marked improvement in quantity and quality of ore during the week.

**BASE MINES OF TREASURE HILL.**—It is known that negotiations are pending for the sale of the Elko, Imperial and Monitor mines.

**BASE METAL—MONTE CRISTO.**—The Trench, Bald Eagle, Badger State, and Philadelphia, are bonded for 90 days, to an English Co.

**TRENCH.**—A fine quality of ore is now being hauled from this mine to the mill.

**OPHR.**—A rich vein of ore from 6 to 10 inches wide was developed this week, the ore assaying well up in the hundreds.

**MERRILL & LEATHERS.**—The company will commence hauling ore from this mine and the Crown Point this week, for reduction at the mill.

**OUTSIDE DIST.**—TEM PIUTE.—The Kinsey shaft will be put down 100 ft.

The Cliff, York and other mines, are looking well.

**ROBINSON DIST.**—On the Osborne mine work is progressing rapidly with good prospects. Finding copper-silver-bearing ore of the highest order.

**PIERMONT.**—The mill is running 10 stamps. A rich body of ore has been found in the South Extension.

There are several promising mines 16 miles east of Piermont.

**WHITE CLOUD.**—This ledge is 12 ft. by measurement. Assayed rock from the top croppings of the Silver Wave, yielding \$518.13 to the ton. Five feet from the surface, rock was obtained that went \$910 to the ton.

**EUREKA.**—There is good authority for saying that nearly all the mines in this dist. in operation, are proving rich beyond the most sanguine expectations of the owners.

**SCHELL CREEK MINES.**—The discovery of rich rock near the Schell Creek station on the Overland road, has caused quite a stir. Several batches of rock have been worked at the Smoky mill, one batch going \$395.78. For a 15 or 20 miles rich rock is found on the surface. The mill at Egan is about to start up on the ore.

## Arizona.

**PRESCOTT Miner**, Aug. 27th: A new silver lode christened the Mineral Creek, was found about 3 miles from Prescott. New and rich ledges have also been discovered in Pino Grove, Turkey Creek Dist. the past two weeks.

## British Columbia.

We clip the following mining items from late exchanges:

A party of miners from Montana, with 60 pack animals, arrived at Victoria on their way to Omineca, and report hundreds on the trail behind them. Reports from Kootenay are generally favorable. It is believed a large extent of fresh mining ground will be opened this year. Good news is had from the Big Bend mining district—the miners making from small wages, to \$30 per day.

## Colorado.

**BOULDER Co.**—Cor. Central *Register*, Aug. 23d: A party left here this week to prospect on St. Vain.

"Richmond" lode carries ore 2 feet in width; worth an average of 160 oz. silver to the ton. "Grand Island" carries ore 15 inches in thickness, the best of which assays 600 oz. silver, per ton, and the average 125 oz. A lot of fine-looking ore lay on the dump. "Grand View" at a depth of 26 feet shows first class silver ore 15 inches in thickness, average value \$500 to \$1,000 per ton.



**CLEAR CREEK CO.**—Johnson & Nichols shipped on Monday a silver brick weighing 1,352 60-100 oz 952 fine; \$1,665-92 coin value. This Capital lode, near Downieville, is attracting attention. An assay made of a choice piece is said to yield 600 oz. per ton in silver. In the 10 ft. last drifted the ore vein of the Wineapolis has changed from 4 to 8 inches. An assay gave 1,055 oz. per ton. It is worked by an adit, in 30 ft. The Equator lode is again producing fine ore. The O. K. lode is in good pay in places. The Stewart Reducing Co. have shipped in the last few days one brick weighing 1,137 ozs., 750 fine, coin value \$1,102.50; another 1,190 ozs., 784 fine, \$1,206.30, and another 1,029 ozs., 788 fine, \$1,038.34, all coin value. Palmer and Nichols shipped one brick of silver weighing 1,406 ozs., 867 fine, \$1,700.96 coin value. These shipments are of almost daily occurrence. The Comet lode is being worked again by Smith & Gravois, who recently assorted a dump and took out about three tons of ore that yielded between \$200 and \$300 per ton.

**SUMMIT CO.**—Cor. same: Greenleaf & Co. are about to construct a ditch from the three branches of the Swan to the divide between French and Humboldt gulches. It will be 13 miles long, will be flumed the entire length, and of sufficient capacity to carry all the water that can be obtained, which will be 1,000 inches or more. Tubbs & Morrow have leased the Gold Hill, below Breckinridge.

**TARRYALL.**—Hawthurst & Footo, work 4 mon, averaging \$7.50 per day to the man; Westall & Barnard work men, averaging \$6 a day to the man. Sargeant & Hubbard work 2 men, and are in \$10 diggings, Judge Hubbard has had several flumes running until recently. He has been digging ditches and constructing a reservoir, averaging good pay. Taylor & Rodus employ 3 men and are doing well. Below Hamilton on the creek, 4 men are working, and making \$4 a day, each. Near the head, several companies are developing ground, from which they obtain good prospects.

**Central Herald, Aug. 30th:** The Lexington, Gilpin County, Whitcomb's Clayton, and Potter's two mills, are running steadily. Hardesty's will be at work as soon as repaired.

Gilman & Russell, below the Rocky Mt. mill, have replaced their sluice boxes, washed away by the flood, with new ones. They clean up on Wednesday, after shovelling in 3 tons of ore, gave 4 1/2 of amalgam.

Tasher has been putting in a rocker at his mill in Eureka gulch. This and Waterman's are run without intermission.

Watford & Co. are working steadily in the gulch below Hill's. They have sunk a shaft 100 ft. to connect with their drift.

**Caribou Post, Aug. 16th:** Dr. Hopkins is driving down on the Mammoth, a strong, well defined, true fissure vein—hard, smooth walls, inclosing 4 ft. of ore at the depth of 30 ft. Deposits of black sulphurets are appearing. 100 ft. to the south Mr. Kenze is at work on the Boulder Co., and has a large amount of ore on dump. A Morgan has 150 ft. on the west end of the same location, and at 50 ft. depth has paying ore.

"The Constitution" is a rich gold lode, 200 ft. north of the Trojan, near Cardinal. The ore assays \$100 per ton.

**Georgetown Miner, Aug. 24th:** Mr. Snider has his company's crushing mill in operation. Work will be resumed on the Ferry lode, Republican Mt. shortly. Work has been resumed on the Briggs, Republican Mt. The Washington lode, Leavenworth Mt., is being worked. Work will soon be commenced both on the Griffith and the Henry Ward Beecher lodes. The Cliff mine, Democrat Mt., is yielding considerable first-class ore. The Terrible is producing a large amount of second-class ore, and considerable first-class. The lode in the Baltimore tunnel worked on a lease, is very productive. Myros has a lot of good-looking ore in mill, from a new discovery in Argentine Dist. The Ashley Franklin lode, Griffith Mt. is being worked, and encouraging results obtained. The Burleigh Tunnel is in 1,150 ft.

**CARBON MINE.**—Central Register, Aug. 30th: It is now 195 ft. deep, having got the 190 ft. level each way started, work has been resumed in the bottom. Here the width of first-class ore is now forty-two inches, and in the drifts driven about 20 ft. each way, the ledge is still wider. In the west shaft down about 100 ft. there is a fine body of rich ore in sight, each shaft 112 ft. deep.

**Idaho.**

**WARREN.**—Cor. Lewiston, Aug. 19th: The Hio Jacet will soon again be crushing rock. The miners on the Rescue ledge

have struck a larger vein and better quartz than has ever been found in that mine. Placer mines are doing well. Gibbs & Co. sold their claims on Meadow Creek for \$8,000, to Chinamen, and are going to open a new set 1 1/2 miles below on the same stream. Chnrch & Co. have good pay in their Meadow claims. John Keep is taking out some fine nuggets of gold from Hnston Creek, varying in size from \$1 to 5 ozs. A party of men are going out in a few days to prospect that stream thoroughly; also some other creeks in that vicinity yet unprospected.

**BOISE CO.**—Boise Statesman, Aug. 26th: The Gold Hill Co. have 25 stamps running. The tailings from the mill assay \$40 per ton.

**BULLION SHIPMENT.**—Silver City Avalanche, Aug. 26th: W. F. & Co. shipped from here, during the week ending yesterday, 10 bars of bullion, valued at \$20,638.89. The shipments for the month of August will foot up about \$100,000.

**FLINT DIST.**—C. S. Miller is working over the tailings of the ore that he crushed in the Rising Star mill last spring. The Twilight Co. continue operations.

**THE MINES.**—Work has been commenced on the Minnesota. A whim has been erected on the north shaft (130 ft. deep) and the water is being hoisted therefrom.

There are between 30 and 40 men at work in the Oro Fino, which is yielding a good quality of ore. Only about 35 miners are now employed in the Chariot. The South Chariot shaft is down 350 ft. The Mahogany continues to yield rich ore. Wright & Babcock have a shaft down 10 ft. on the north extension of the Idlewild. The vein is about 10 inches wide and shows rich in both silver and gold. The Empire shaft is now down 100 ft., at the bottom of which the ledge is 3 ft. wide. The shaft of the Little Grant is down 25 ft., showing the vein to be from 8 to 17 inches in width—rich in gold.

**Montana.**

**SALE.**—S. Givens has purchased Dr. Young's interest—one-third—in a mining claim on Glasgow's Bar, near Pioneer City. The price paid was \$6,000.

**WEST SIDE.**—Prospecting is going on at the head of Willow creek, northwest of Emmetsburg, with some indications that diggings may be found.

Powers, Miller, Guinn & Co. are putting in a "Bed-rock flume" near the town of Lincoln, 9 miles from the mouth of Cedar creek. The flume will be one mile in length.

**SUN RISE GULCH** is said to be almost worked out, having only 22 miners engaged in it at present.

**New Mexico.**

**CUNNINGHAM GULCH.**—Cor. Santa Fé Post, Aug. 26th says: French and Johnson cleaned up their arastra yesterday with satisfactory results. From two tons of what they call their good ore, they realized \$850.50.

Several silver lodes have recently been discovered which look promising, producing a very fine grained galena ore.

**Oregon.**

**BOHEMIA.**—Jacksonville Sentinel, Aug. 26th: The Bohemia party have returned; Mr. Small says that ere long hundreds and thousands of men will be there, working one of the richest quartz mines on this coast.

**Utah.**

**BULLION SHIPMENT.**—Salt Lake Tribune Aug. 29th: W. F. & Co. forwarded yesterday to N. Y. 9 bars of bullion from the Meadow Valley Wks., Pioche, Nev.

Same Aug. 30th: Woods & Co. shipped yesterday, one car load of bullion to Omaha, one to N. Y., and two to S. F.

W. F. & Co. ship, this morning, to N. Y., of Pioche bullion, (fine,) 14 bars, worth \$18,002.10.

**SUNBEAM.**—Col. Kinzer leaves to-day to consummate a sale of 1,600 feet on this celebrated mine.

**THE EUREKA MILLING CO.'s** mill is to be in operation within 70 days.

**GOLD.**—There has been considerable excitement in Little Cottonwood in consequence of the discovery of a gold-bearing quartz vein in the mountains a few miles from Central City. The rock appears to be quite rich, but as to the extent of the vein and the exact locality we are unable to give any information.

**TUNNEL SALE.**—Salt Lake Review Aug. 29th: A sale was perfected yesterday where in Eastern parties purchased \$2,000 worth of the North Star Tunnel Co., of East Canyon, paying down the cash.

**Mining Stock Market.**

THURSDAY EVE., Sept. 7, 1871.

Despite the attention given to politics during the past week, a very fair amount of business was transacted in the Board, several "corners" having had the effect of bringing out more stock than would otherwise have been the case. This was particularly noticeable in Yellow Jacket, which during the previous week sold to the extent of 12,500 shares, the extreme price being \$75 per share, and showing an average valuation of about \$70 per share, and a total of \$875,000, against 8,630 shares the present week, the price dropping to \$52 50 per share, but rallying again to \$59, and the aggregate sales amounting to about \$517,800. As a natural consequence, these sharp manipulations have brought ruin upon parties who were prominent and heavy dealers, carrying with them a train of suffering "dabblers," who now curse the day they ventured upon so apparently hopeful a speculation. Prices, generally, continue to be well maintained, and in a few instances a marked advance is observable. Outside stocks are in large demand at advancing figures.

The sales in the San Francisco Stock Board, from August 31st to September 6th, inclusive, have been as follows:

15 shares Amador at \$200 250.  
577 shares Belcher at \$17 1/2 @ 11 25.  
255 shares Buckeye at \$1 7 1/2 @ 50.  
1725 shares Consolidated Virginia at \$11 @ 25.  
4946 shares Chollar-Potosi at \$3 20 @ 31 75.  
7 115 shares Crown Point at \$30 @ 20 b 60.  
2630 shares Caledonia at \$16 @ 15 @ 18.  
2685 shares Eureka at \$15 7 1/2 @ 20.  
3005 shares Eureka Consolidated at \$15 7 1/2 @ 16 25.  
624 shares Gold & Curry at \$10 @ 21 16.  
1300 shares Golden Chariot at \$23 @ 29 21.  
220 shares Hale & Norcross at \$84 50 @ 83.  
300 shares Julia at \$10 15.  
82 shares Kentuck at \$157 50 @ 135.  
2020 shares Mahogany at \$10 50 @ 75.  
2531 shares Meadow Valley at \$21 50 @ 24 50 @ 25.  
655 shares Ophir at \$11 1/2 @ 10 25.  
1315 shares Ophir at \$25 @ 22 25.  
920 shares Overman at \$5 50 @ 25.  
3955 shares Pioche at \$12 @ 14 50.  
10,275 shares Phoenix at \$3 @ 15.  
4030 shares Raymond & Ely at \$21 @ 27 25.  
130 shares Monitor and Magnet at \$9.  
119 shares Savage at \$40 @ 41 50 @ 40 25.  
175 shares Segregated Belcher at \$12 50 @ 13 50.  
2170 shares Sincor at \$6 50 @ 28.  
8830 shares Yellow Jacket at \$68 50 @ 52 50 @ 53.  
400 shares Yale Gravel at \$1 52 1/2 @ 11 25.  
360 shares Ida Elmore at \$5 25 @ 4 @ 4 75.  
1075 shares Jackson at \$4 @ 6 @ 6.  
40 shares Sierra Nevada at \$17.  
815 shares Denison at \$10 25 @ 11 25.  
30 shares Imperial at \$4 @ 40.  
120 shares Lady Bryan at \$2 50 @ 27 75.  
130 shares Independent at \$3 50.  
130 shares Young at \$10 25 @ 11 25.  
100 shares San Francisco Gas at \$82.  
25 shares Pacific Insurance Co. at \$111 50.

Amount of sales.....\$1,634,923.

**CHOLLAR-POTOSI**—sold to a considerable extent at pretty uniform rates. They extracted 620 tons of ore for the week ending September 2d, showing an assay of \$40 20 per ton, against \$44 20 per ton the previous week. Nothing of an encouraging nature has recently been discovered. A dividend of \$1 per share will be paid on the 9th.—**HALE & NORCROSS** is dull of sale. Extracted 295 tons of ore for the week ending Sept. 2d. They have 2,876 tons of low-grade ore on hand.—**SAVAGE** sold to a limited extent at even prices. For the week ending Sept. 3d, 591 tons were extracted, showing an average yield of \$35 84 per ton. The sixth station is yielding considerable ore.—**CROWN POINT** is weak. A letter of the 3d says: "The 900-drift is in 85 feet; the quartz is very hard and carries a large proportion of lime. The 1,000 is in 62 feet. The ore is of good quality. The winze to connect 900 and 1,000-levels is down 75 feet, and the winze to connect 1,000 and 1,100-levels is down 24 feet. The east half of breast of the 1,000-level carries ore of a very good quality; west half very poor. The ore on the several floors above is of good quality. Since last report the breast in the 1,100-level has decreased in width 8 feet. The incline is down 125 feet. Ore extracted and shipped to mills for week ending Sept. 3d, 1,521 1/4 tons; estimated value, \$67,579 21." A dividend of \$10 per share will be paid on the 9th.—**BELCHER** has appreciated very considerably within the past few days. "The 1,100-drift is in 96 feet from Crown Point line, and looks splendid; are breasting out 20 feet in width along the west wall. Still good ore east of us. Are cross-cutting on the line, to ascertain the width of the ore. Are taking out 50 tons daily, and will be able to increase the quantity in a few days."

**CALEDONIA** yielded \$17,212 in bullion during August.—**SUCCOR** will pay a dividend of \$50 per share on the 15th.—From July, 1869, to August 5, 1871, the bullion yield amounted to \$186,000.—**MEADOW VALLEY** is advancing. Already \$150,200 in bullion has been received for account of August, with two more shipments to arrive.—**YULE GRAVEL** disbursed a dividend of 50c per share on the 4th inst.—We note the following assessments: **JULIA**, 50c per share, levied August 31st; **MAHOGANY**, \$3 per share, Sept. 4th; **ARGENTA**, 50c per share, Sept. 4th; **LUCERNE**, \$3 per share, Sept. 5th.

**MINING STOCK QUOTATIONS, SEPTEMBER 7, 1871.**

CALIFORNIA.		BID.		ASKED.	
Amador.....	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Eureka.....	19	19	19	19	19
WASHINGTON.		BID.		ASKED.	
Alpha Con.....	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Belcher.....	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Caledonia.....	17 1/2	17 1/2	17 1/2	17 1/2	17 1/2
Chollar-Potosi.....	31 1/2	31 1/2	31 1/2	31 1/2	31 1/2
Consolidated.....	11	11	11	11	11
Crown Point.....	30 1/2	30 1/2	30 1/2	30 1/2	30 1/2
Empire.....	10	10	10	10	10
Gold Hill M.O.....	119	119	119	119	119
Gould & Curry.....	119	119	119	119	119
IDAHO.		BID.		ASKED.	
Golden Chariot.....	22 1/2	22 1/2	22 1/2	22 1/2	22 1/2
Ida Elmore.....	4 1/4	4 1/4	4 1/4	4 1/4	4 1/4
UTAH.		BID.		ASKED.	
Meadow Valley.....	22 1/2	22 1/2	22 1/2	22 1/2	22 1/2
Eureka Con.....	16 1/2	16 1/2	16 1/2	16 1/2	16 1/2

**Mining Shareholders' Directory—Meetings, Assessments and Dividends.**

[Compiled weekly from advertisements in the SOLENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS		DATE OF ASSESSMENT AND DELINQUENCY OF SALE.	
Alameda Coal M. Co., Cal.,	Sept. 7, 50c.	Oct. 9—Oct. 30*	
Bellevue, Placer Co., Cal.,	Aug. 30, \$1.	Oct. 3—Oct. 23*	
Buckeye, Lyon Co., Nev.,	July 19, \$1.	Aug. 22—Sept. 8	
Cherokee Flat B. G. Co.,	Aug. 12, \$2.50.	Sept. 13—Sept. 29	
Columbus M. & M. Co.,	Aug. 8, \$1.	Sept. 12—Sept. 30	
Empire, Storey Co., Nev.,	Aug. 1, \$1.50.	Sept. 15—Sept. 25	
Empire Mill & M. Co.,	Aug. 12, \$2.	Sept. 27—Oct. 17	
Gen. Lee S. M. Co., W. P.,	Aug. 25, 10c.	Sept. 29—Oct. 13	
Gold Run M. Co., Cal.,	Sept. 6, 25c.	Oct. 10—Nov. 1*	
Hale & Norcross, Va. City,	Aug. 21, \$10.	Sept. 23—Oct. 13	
Highland S. M. Co., Nev.,	July 13, 10c.	Aug. 1—Sept. 11*	
Jackson, Lander Co.,	Aug. 30, \$2.50.	Oct. 4—Oct. 24	
Jensen Lubricator Co.,	Aug. 1, 50c.	Sept. 7—Sept. 28	
Kennedy Flat M. Co., Tu. Co.,	Aug. 4, \$2.	Sept. 15—Sept. 27	
Lucerne M. Co., Nev.,	Aug. 17, \$3.	Sept. 20—Oct. 10	
Mammoth, White Pine, Aug.,	16, 10c.	Sept. 19—Oct. 9	
Marble Falls, Nye Co., Nev.,	July 12, 50c.	Aug. 12—Sept. 15	
Meadow Valley Ex. July 5, \$1.		Aug. 14—Sept. 11	
Mina Rica M. Co., Placer, Aug.,	8, 20c.	Sept. 11—Oct. 3*	
North America Con. M. Co.,	July 31, 20c.	Sept. 25—Oct. 18*	
Nevada Butte, Battle M.,	Nov. 15, \$1.	Aug. 12—Sept. 15	
Nevada Land & Min. Co.,	July 25, 4c.	Aug. 29—Sept. 30	
Noonday, White Pine, July 13, 20c.		Aug. 21—Sept. 18	
Ophir, Va. City, July 12, \$5.		Aug. 16—Sept. 8	
O. H. Treasure, July 6, \$2.		Sept. 7—Sept. 27	
Ophir C. S. & G. M. Co., Aug. 2, 75c.		Sept. 4—Sept. 26*	
Overman, G. H., July 26, \$2.		Aug. 31—Sept. 15	
Pacific, Lander Co., July 24, 50c.		Aug. 25—Sept. 17	
Piermont, W. P., Sept. 4, \$1.		Oct. 9—Nov. 5*	
Quail Hill M. & W. Co., Aug. 16, \$20.		Sept. 27—Oct. 16*	
Seg. Belcher, G. H., July 20, \$5.		Aug. 23—Sept. 12	
Shimley, Placer Co., Aug. 2, \$2.		Sept. 6—Sept. 27	
St. Louis M. Co., Nev., Aug. 17, \$3.		Sept. 20—Oct. 9	
St. Patrick, Ophir Dist., Aug. 16, 5c.		Sept. 20—Oct. 9	
Summit, Kern Co., June 24, \$3.		Aug. 15—Aug. 30*	
Tecumseh G. S. & O. M. Co., July 25, \$5.		Sept. 4—Sept. 28*	
Talibah, Humboldt Co., Nev., July 27, \$1.		Aug. 28—Sept. 19	
Virginia M. & M. Co., W.P., July 25, 25c.		Sept. 2—Sept. 20	

MEETINGS TO BE HELD.	
Argenta Silver M. Co.....	Annual Meeting, Sept. 4
Bellevue M. Co.....	Annual Meeting, Sept. 14
X. L. M. Co.....	Annual Meeting, Sept. 14
Virtue.....	Annual Meeting, Sept. 4

LATEST DIVIDENDS—(Within Three Months).	
Chollar-Potosi, \$2.....	Payable July 11
Chollar Potosi, \$5.....	Payable May 20
Crown Point \$10.....	Payable June 10
Eureka (Cal), \$1.....	Payable Aug. 10
Eureka Cons., \$1.....	Payable Aug. 10
Meadow Valley.....	Payable Sept. 21
Natoma, div. 1 per cent.....	Payable Aug. 5
Overman.....	Annual Meeting, July 13
Redington, 1 per cent.....	Payable Aug. 5
Yellow Jacket, \$2 50.....	Payable July 10
Yule Gravel, 50 cts.....	Payable Aug. 4

—Advertised in this journal.

**Leather Market Report.**

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, September 7.	
SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.	
City Tanned Leather, #1.....	26 1/2 @ 29
Santa Cruz Leather, #1.....	26 1/2 @ 29
Country Leather, #1.....	26 1/2 @ 29
Leading French stocks have declined slightly. California kips are higher and in demand.	
Jeodot, 8 Kil., per doz.....	58 00 @ 60
Jeodot, 11 to 15 Kil., per doz.....	80 00 @ 85 00
Jeodot, second choice, 11 to 15 Kil., #1 doz.....	80 00 @ 88 00
Lemoine, 16 to 19 Kil., #1 doz.....	59 00 @ 60
Lemoine, 20 to 24 Kil., #1 doz.....	72 00 @ 70 00
Cornellian, 16 Kil., per doz.....	72 00 @ 70 00
Cornellian, 12 to 14 Kil., per doz.....	65 00 @ 70 00
Oceanau Calif., #1 doz.....	54 00 @ 55 00
Oceanau Calif., 16 Kil., per doz.....	60 00 @ 65 00
Robert Calif., 7 and 8 Kil.....	35 00 @ 40 00
Common French Calif Skins, #1 doz.....	35 00 @ 75 00
California Kip, #1 doz.....	60 00 @ 75 00
California Kip, #2 doz.....	60 00 @ 75 00
Eastern Wheel Stuffed Calif, #1 doz.....	80 00 @ 1 25
Eastern Bench Stuffed Calif, #1 doz.....	1 10 @ 1 25
California Calf Boots, #1 pair.....	1 10 @ 1 25
Sheep Roams for Topping, all colors, #1 doz.....	8 00 @ 13 00
Sheep Roams for Linings, #1 doz.....	5 00 @ 10 00
California Sheep Roams, #1 doz.....	5 00 @ 5 50
Good French Cal Boot Legs, #1 pair.....	5 25 @ 5 50
Good French Cal Boot Legs, #2 pair.....	4 50 @ 5 00
French Cal Boot Legs, #1 pair.....	4 00 @ 4 50
French Cal Boot Legs, #2 pair.....	3 50 @ 4 00
Fair Bride Leather, #1 doz.....	48 00 @ 72 00
Skirting Leather, #1 doz.....	34 00 @ 37 00
Wet Leather, #1 doz.....	30 00 @ 35 00
Leather, #1 foot.....	17 00 @ 21
Wax Side Leather, #1 foot.....	18 00 @ 28



# PATENTS & INVENTIONS.

## Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

### FOR THE WEEK ENDING AUGUST 22D.

VAPOR BURNER.—Coolidge B. Brown, Placerville, Cal. Antedated August 21, 1871.

SHIELD FOR BOOTS AND SHOES.—Orren Collier, Sacramento, Cal., assignor to Robert M. Funkhouser, New York, N. Y.

RULER.—Louis Feusier, Jr., Virginia City, Nev.

RULER.—Louis Feusier, Jr., Virginia City, Nev.

SIDE-ARM SHEATH.—Joseph J. M. Frey, Sacramento, Cal.

SCREW PROPELLER.—Henry Zahn, San Francisco, Cal.

### TRADE-MARK.

PIPIFAX BITTERS.—Walter & Shaeffer, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

## Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

PROJECTILE.—Thomas Hill, Vallejo, Cal. This invention consists in the use of two or more concentric shells, one within the other, so arranged that one shall contain the bursting charge, while the other shall be loaded with bullets, scrap iron or other missiles that are to be thrown out by the explosion. If a third inner shell is employed, this may serve to contain a small vial of liquid fire which is broken by the concussion of striking, and communicates with the bursting charge through small holes in its containing shell. If preferred, tubes are made to extend through the shell in different directions, so that some one of them shall be in a line with the direction of impact at the time of striking, and these tubes contain fulminates so arranged as to explode by the concussion, and thus ignite the charge in the shell.

CHURN.—Thomas Bee Parke, Downieville, Cal. The object of this invention is to provide certain improvements in the construction and operation of churns using double rotary dashers, and it consists first, in a peculiar form and application of the dasher arms and their arrangement so that the cream is thrown from the center of the tub to the sides, where it will be acted on by the outside beaters; and secondly, in an improved manner of securing the cover upon the churn, so that it cannot be displaced by operating, but can be readily removed if required. It also consists in a novel arrangement of the driving gear, by which the beaters are driven at different speeds, so as to give the best results. Mr. Parke has exhibited his churn during the Mechanics' Fair to many thousands of visitors, who have been attracted to witness its simple operation. After practical use, he has called it the minute churn, as an appropriate name for it.

WELT TRIMMER FOR BOOTS AND SHOES. Joseph H. Allen, Wadsworth, Nevada. By means of this invention a simple and convenient tool for trimming the welts of boots and shoes is provided, and it consists of an adjustable knife properly protected so that it shall not cut the upper leather, by means of a flat, tapering guard bent at its outer end and secured to a convenient handle. The knife is made adjustable in a holder which moves in a slot in this guard.

FARM GATE.—Michael Barthel, San Francisco. This invention is an improvement in self-operating farm gates, or rather those which are intended to be opened or closed from either side without leaving the vehicle. It consists of a gate having

a horizontal axis at the bottom and inside end of the gate, so that it can be turned about this axis when opened. Posts sufficiently tall are so arranged as to carry the operating cords to a point within easy reach of the driver. These cords lead to large pulleys at the side of the gate or the inside post. One of these wheels or pulleys is eccentric and the other concentric to their axis, and by means of other cords passing from these wheels to points on the gate, it can be opened with the utmost ease, and can be made to stand at any point, partially or fully, opened or closed by means of the eccentric pulley, and a system of compensative weights which do not in the least interfere with its action.

GOLD-SAVING APPARATUS.—George R. Evans, Virginia City, Nevada. This invention consists in the employment of an ordinary sluice having transverse slats at points along its bottom. Just beneath this sluice is placed one formed with alternate convex and concave semi-circular arcs, so that the concavities are beneath the slats above mentioned. By this arrangement the heavier particles of gold and amalgam, which are moving along the bottom of the sluice, will be carried through the slats and fall into the quicksilver contained in the lower sluice where they will be saved.

FURNACE FOR ROASTING ORES.—Stephen Ambler, Monitor, Cal. This invention relates to what the inventor calls a compound blowpipe furnace, to be used for smelting or roasting ores. It consists in a carbonizing chamber into which the wood is placed and converted into charcoal before it reaches the fires, where it is to be used as fuel. Two pipes lead into this furnace through which a blast of air is driven, one of the pipes being so arranged as to give an oxidizing flame, and the other gives a reducing heat.

Connected with this chamber is a reducing tube into which the ore is fed, and through which the heat from the carbonizing chamber is caused to pass, carrying with it the pulverized ore which passes into a revolving cylinder, which is connected with the opposite end of the tube.

## TRIAL OF THE ENGLISH TRACTION ENGINE.

We have already given in two previous numbers, the results of the trials of two traction engines in the United States, one being that of the Hyde Overland Road Steamer, provided with rubber tires, in the desert about Salt Lake, and over wild, bad mountain roads, or rather, almost no roads, with poor fuel, and no previous arrangements for furnishing either that or water. The extraordinary results and complete success of this trial have been already noted. The other trial was that of an Aveling & Porter (English) traction engine with iron tires, just imported and which was tried upon a nearly level track, under favorable circumstances, in New Jersey. This engine performed favorably, as might have been expected.

We have now to lay before our readers the results of trials made in England at the Wolverhampton show in the latter part of June, and during these trials the rubber tired engines first came into public competition with rigid or iron tires. Since Thomson, of Edinburgh, obtained patents for the application of rubber tires to the road wheels of traction engines, much has been said of the wonderful performances of such engines, and the public has been led to suppose that rubber possessed some mysterious power which enabled engines provided with tires of this material, to perform feats utterly impossible to other machines. Among these the power of traversing soft ground was pretty severely tested during the late exhibition, and by many the trial was thought to be a decided defeat for rubber tires; but, as will be seen, the trial was not so much one between elastic and rigid tires, as it was between a nearly smooth iron surface, (which the outside protecting plates or hands of the rubber tired wheels really give) and a surface

of paddles or spikes which were employed upon the rigid tires of some of the other engines. With these explanations we now proceed to

### The Trials.

The first proceedings in connection with these trials took place on Saturday, the 29th of June, and consisted merely of a trial of the engines without loads over a run of 1½ miles. The results were as follows:

Aveling & Porter's 10-horse.....	29	min.
Chas. Burrell } Thomson's road steamer.....	28	"
Chas. Burrell } 2d Trip.....	15½	"
Aveling & Porter's 6-horse.....	22½	"
Ransomes, Sims } Farm Steamer with india	24½	"
and Heads } rubber tires.....	23½	"
Chas. Burrell, 8-horse, ordinary patterns.....	22½	"

Tuxford's engine met with a mishap and did not finish. A little 6-horse engine made by Messrs. J. Fowler & Co. although not entered, made the run in 16½ minutes, notwithstanding that it was checked, by being obliged to run for some distance behind Messrs. Tuxford's engine. This, however, was nothing compared with Monday's work, when loads were to be hauled, it having rained steadily all day and night Sunday, and Monday forenoon till the course was little better than a swamp.

The first engine to make the trip was Messrs. Aveling & Porter's 6-horse engine, weighing 5 tons, 4 cwt., 2 qrs. This engine took a load of 5 tons, 10 cwt., and made the trip in 51½ minutes including 13½ minutes stoppages, these latter for the purpose of putting spikes or paddles on the wheels when an unusually bad spot was to be crossed, or to move the engine up an incline and then connect with the wagon by means of a chain, so that the engine would have the advantage in pulling the load up.

The next to start was Messrs. Ransomes, Sims & Head's 8-horse rubber tired steamer, with a load of 5 tons. This engine by dint of digging out, and a liberal use of planks and jack-screws, finally finished in 4 hours and 10 minutes. The rubber tires not only slipped on the ground, but the wheels slipped within them, and the engine was finally obliged to go home without its load. Mr. Burrell, after witnessing this trial, very sensibly withdrew his rubber tired engine, but tried one of the ordinary pattern, which made an excellent run of 1 hour and 1 minute, or deducting 28½ minutes for stoppages, a running time of 32½ minutes. This engine was 8-horse power, and drew 7 tons.

After this Messrs. Aveling & Porter started their 10-horse engine; at first with 10 tons, but afterwards they were obliged to take off 1 ton, when the engine made the trip in 1 hour and 5 minutes, or a net time of 40 minutes, although the road was by this time such a quagmire that the wagons sunk to their axles, and sometimes advanced without turning their wheels. This engine was also provided with paddles and spikes.

On the following Thursday the engines were loaded in proportion to their power, and the consumption of fuel carefully noted in making a run from Wolverhampton to Stafford, a distance of 16 miles. The chief results are as follows:

	Time.	Load.	Coal Used.
	hrs. min.	tons.	cwt. qr. lbs.
Ransomes, Sims & Head.....	3 35	12	1 6 20
Aveling & Porter 6-horse.....	4 17	9	3 2 0
Aveling & Porter 10-horse.....	4 20	15	5 1 17
Chas. Burrell, ordinary pattern.....	5 10	12	4 3 0
Ordinary Thomson patent.....	5 10	12	8 2 0

This last engine was delayed by the breaking down of one of the wagons. A steam omnibus with a light load of passengers went over the road in 2 hours, 30 minutes, using 5 cwt. 1 qr. of coal.

On Saturday, July 8th, a final and most interesting trial was had, for the purpose of testing the relative merits of the rubber tired and rigid iron wheeled engines, upon a road which should represent the average inclines that would likely to be met by traction engines, and at the same time be sufficiently steep to afford a good test of the powers of any engine. The road was carefully levelled, sights being taken every 100 yards, the first part showing a grade of 1 in 25, the next 1 in 20, the third, 1 in 18, the fourth, 1 in 22, fifth, 1 in 20, sixth, 1 in 22, the remainder being of a less gradient so that only about 1,900 feet presented any incline worth notice.

The engines tested, were one of Messrs. Ransomes, Sims & Head, weighing about 10 tons, and provided with two sets of wheels, one set having rubber tires, and the other set being smooth faced cast iron wheels.

The other engine was Messrs. Aveling & Porter's 10-horse engine with iron wheels. The engines were loaded until the wheels would slip, and in the case of the rubber tired engine one set of wheels were first used and then the other.

By this arrangement and by carefully

noting the loads and their proportion to the weight on the traction wheels, it is manifest that very satisfactory comparisons could be made between the rubber tires and the two classes of iron tires. The rubber tired engine was the first to start with a gross load of 36 tons, of which the engine weighed 10 tons, 6½ cwt., 7 tons, 9 cwt. being supported on the driving wheels. With this load the engine started with 150 lbs. of steam, and moved steadily up the incline reaching the summit in 10 minutes, 45 seconds, easily maintaining steam at 145 lbs. As it was evident that the engine had not been fully loaded, Aveling's engine was thrown out of gear and attached to the rear of the train, which consisted of three wagons loaded with pig iron and one portable engine. For 300 feet the engine went all right and then stopped by slipping her wheels on an incline of 1 in 20. The portable engine was then thrown off and she again started with a load of 43 tons, proceeding till the wheels again slipped on an incline of 1 in 18. At this point the experiment stopped, proving that the maximum tractive force of the rubber tires on an incline of 1 in 18, was equal to a load of something more than 36 and less than 43 tons.

While changing the wheels of this engine, the Aveling & Porter 10-horse engine took the three wagons and proceeded 500 feet to where the portable engine had been left standing. This being coupled on, she had the same load which the rubber tired engine had drawn, plus 19 cwt. extra weight of the engine. The engine weighed 11 tons, 4 cwt., of which 8 tons, 10½ cwt. were on the drivers. These wheels were 6 feet in diameter, 18 inch face, rising in the center 1 inch, and provided with diagonal crossing pieces. After the portable engine had been attached, the steamer again started and after slipping a good deal finally stuck at 1,600 on a grade of 1 in 22. As she had already surmounted a grade of 1 in 18, it was evident that the tractive power of the wheels had been lessened by constant slipping, which had worn them bright. The time occupied in hauling 500 feet less the distance than was traversed by the other engine, was 29 minutes, 15 seconds, and it was evident that although the iron tired engine had hauled the load up once, she could not do it again.

By this time a change of wheels had been made on the other engine, and it now started with iron tired wheels weighing 11 cwt. more than in the first case, the weight for adhesion being more than with rubber tires. The gross weight this time was only 28 tons 4 cwt. After much slipping the 1,500 feet mark was reached, when it stuck on a grade of 1 in 18 and refused to move further. The portable engine being detached the engine finally reached the top in 28 minutes after started. No more conclusive proof of the superiority of the rubber tired engine was needed, and the experiment thus terminated.

### Conclusions.

The above is condensed from the very lengthy accounts given by the English papers, and they seem to be of the opinion that while for some kinds of work the rubber tire may be useful, yet considering their great cost, and the results of these trials, the rigid tired wheels are nearly as valuable, while at the same time they are not one-half as expensive. These opinions are predicated upon the tires used upon the Thomson steamer, which being made in one piece are of a necessity very costly, liable to become damaged, and difficult to repair. These objections will not, however, apply to the California engine, which we have already spoken of several times, as by the peculiar construction of the tires they are neither costly at first, difficult to repair, nor liable to disarrangement.

NATIONAL SWINE EXPOSITION.—A great National Swine Exposition is to be held at Dexter Park, Chicago, September 19th to the 21st, under the auspices of the Illinois Swine Breeders' Association. It is expected that there will be a large attendance on the occasion, and a very extensive show of animals. Assurances have been given that nearly every prominent breeder in the Northwest will be represented. The magnitude of the hog market of the United States, annually, is at once a sufficient answer as to the utility of such an exhibition.

AMERICAN INSTITUTE EXHIBITION.—The fortieth annual exhibition of the American Institute, at New York, commences on the 7th of November, and promises to be one of unusual interest.



## ORES AND MINERALS AT THE MECHANICS' INSTITUTE FAIR.

The collections of ores, minerals, etc., in the Mechanics' Institute Fair this year, far exceed all former attempts at such an exhibition. Besides small lots and isolated specimens and samples from various parts of this coast, there are also several fine and extensive private collections. That of Mr. Cronise first attracts attention from the elegant cabinet in which it is displayed, although at the end of the room. The cabinet itself, leaving the collection aside, is worthy of special notice, and is said to have cost \$850. The contents of the cases are well selected, and the intrinsic value must be very large. The collection would be a credit to any institution in the country.

Mr. Henry G. Hanks, the well known assayer, has on exhibition 17 cases of ores, minerals, fossils, etc., which are numbered, but not described. This gentleman is the most industrious collector on the coast, and has spent a large amount of time as well as money, in getting up his cabinet, and is continually adding to it. The exhibit is a fine one, and naturally attracts much attention from mining men and especially from savans, from the variety and beauty of the specimens. This exhibit is worthy of more extended mention which we shall endeavor to give in a future number.

The first case to be seen on entering the room is that containing ores, metals, etc., from the cabinet of A. S. Gould and Son, Salt Lake City, and entered by Gov. Sam. Purdy. As these specimens are nearly all from Utah, a mining region attracting a large amount of attention, from the richness and extent of its lodes, we shall enumerate a few for the benefit of our readers in the interior.

No. 1 is the first silver ever refined from Utah ores, Feb. 1869, and a very pretty piece it is. No. 2 is a piece of horn silver from the Mountain lode, Tintic District, Utah. No. 3 arsenical sulphurets of iron. No. 38 is a very large piece of copper ore from the Mammoth lode, Tintic District. The effect of the greenish tinge from the copper on the crystallized quartz, makes this a fine specimen. No. 43, cinnabar ore from Jenny Lind ledge, Little Cottonwood. No. 42, galena from Poor Man's Friend, East Cañon, assays silver \$140 and per cent. copper. No. 31, some specimens of carbonate of lead from Star District, U. T. No. 40, argentiferous galena from Big Cottonwood Cañon. No. 44, a large piece of carbonate of lead from the famous Emma mine, average assay, \$500, per ton in silver. No. 37, silver ore from the Shoe-bridge, Tintic District, average assay \$350 per ton. No. 36, argentiferous galena from Montezuma, Little Cottonwood, average assay, \$300 per ton. No. 35, a piece of horn silver from Tampier mine, East Cañon. A piece of this specimen assayed \$10,000 per ton. No. 41, galena from the Scotia, West Tintic, average assay, \$225 per ton. No. 32, green looking ore from Jupiter, Star District, assays \$300 per ton in silver.

As showing the average assays of silver rock from Tintic District, in the vicinity of Salt Lake City, there are exhibited in the same case a number of bottles of ore, sampled by Howland & Co., of Salt Lake City, the yield of which, according to the accompanying memoranda, is as follows:—

No. 46—Mal Henrietta.....	\$1,085 00
No. 47—Grey Eagle.....	145 00
No. 48—Mountain Tiger.....	40 00
No. 49—Black Dragon.....	923 00
No. 50—Annie.....	98 00
No. 51—Montana.....	6,900 00
No. 52—Newton.....	185 00
No. 53—Ruby.....	200 00
No. 54—Milton.....	149 00
No. 55—Sunbeam.....	256 00
No. 56—Ditto.....	800 00
No. 57—Susan.....	170 00
No. 58—Martha Washington.....	500 00
No. 59—Salom.....	90 00
No. 60—Lucky.....	720 00
No. 61—Sarah Ann.....	163 00
No. 62—North Star.....	350 00
No. 63—Mammoth.....	94 00
No. 64—Wyoming.....	774 00

Some of the specimens shown in this case are from Gov. Purdy's private collection; among which is one from the Emma Jane, Tintic; and a fine large piece of argentiferous galena from the Monitor and Magnet, the average assay of which is \$100 per ton in silver, and 68 per cent. of lead. The ores from the Big and Little Cotton-

wood, and American Fork Districts are all base and require to be smelted, while that from Opbir and Camp Floyd can be milled.

In the next case are several specimens of petrifications and samples of copper ore. A cone of bullion drippings also attracts attention. A large piece of tufa is also shown. In this case, No. 1,008, is a bar of bullion from Stockton, U. T., presented by W. H. Murray, 1,020 is a large specimen of tin ore from the Star of the West, Ogden, Weber Cañon, U. T. average per cent. 246 lbs. to the ton, also by Mr. Murray.

The same gentleman presents several fine specimens from the Savage mine, Little Cottonwood. There is a beautiful specimen of yellow, blue and green ore from the "Cumberland," American Fork Dist., U. T., assaying in silver \$175 per ton. No. 29 is a handsome piece of argentiferous galena, from Bingham Cañon. A piece of salt crystallized on a twig of sage brush attracts considerable attention.

In the next case there is a large number of specimens from White Pine, one of which is a yellow piece of chloride of silver from the "Gloucester," western slope of White Pine mountain, presented by Messrs. Woodruff and Bush, the owners. A piece of white spar from Treasuro Hill, White Pine, is presented by Messrs. Woodruff & Ennor, the well known stago proprietors. The same gentleman presents a specimen from the Amazon ledge, Clifton, U. T., and several from the western slope of White Pine mountain. There are specimens in this case from the North Aurora, Eberhardt, Snow Drop, Ward Beecher Consolidated, Ballion, South Aurora and several other mines. A large piece of ore from the Blue Jacket, Bull Run Dist., Elko county, marked as assaying 600 per ton shows well. There are also six specimens from the Meadow Valley mine, Ely Dist., Lincoln county, Nevada, taken from different places in the shaft.

In the case marked "California," are several specimens of galena and carbonate of lead, from the Union mine, Cerro Gordo Dist., Inyo county, Cal., yielding 40 per cent. of lead and 50 ozs. of silver to the ton. Belmont, same dist., assays 200 ozs. of silver to the ton. There is a fine piece of "Peacock" ore from the Widdekint mine, and specimens from the Buena Suerta, Belmont, Friendship and many other mines in Cerro Gordo District, the majority of them exhibited by Mr. W. Belshaw, a smelter and refiner in that locality. These ores are all carbonates and sulphurets of lead—argentiferous of course.

San Diego county, is represented by a large piece of rock, plentifully sprinkled with free gold, from the Madden mine, Banner District. The description accompanying it informs us that \$3,600 were taken from 67 tons worked by arrastra, and that the gold is 832 fine. There are in this case a number of specimens of gold ore from Calaveras county, Cal., presented by Ira H. Reed.

In the fourth case is a piece of ore from the "Terrible" mine, Georgetown, Colorado, presented by W. H. Murray, and several specimens of gold, silver and copper ore from Arizona, presented by Chas. Gentile, Esq.

There are also several pieces of lead, gold and silver ores from Oregon, entered by A. H. Gilmore; also a fine collection of various ores and curiosities by B. F. Hughes, of Calaveras.

A case containing petrifications, ores and various curiosities belonging to Mrs. R. M. Chamberlain, attracts considerable attention. Two large crystals from Chili Gulch, Calaveras county, Cal., have been placed on exhibition, which are quite as clear and fine, as those from Japan.

Some enterprising genius has made a pyramid, covered with gold paper, representing the yield of the Thames Goldfield, Auckland, New Zealand, up to the end of April, 1871—475,396 ozs. valued at £1,524,128. Not to be outdone in this exhibit, the idea has been copied in the shape of an enormous cube, covered with gold paper representing the average yield of gold and silver for one year on the Pacific Coast, equalling in bulk 149 cubic feet, and representing \$54,000,000, the whole yield for 22 years being \$1,200,000,000.

It is to be regretted that there is not complete catalogues of these ores and minerals, for they are a center of interest to many people. The general catalogue of the Fair, gives no information on this point.

THE HARVEST.—The Willamette Farmer Aug. 19th says: Farmers are now in the midst of harvesting. The fall wheat turned out well, on many farms averaging forty bushels to the acre. The spring sown wheat and oats will not show as good yield as ordinarily.

## GOOD HEALTH.

### The Cholera.

Much uneasiness is being felt through out the Eastern cities at the threatening appearance which the cholera epidemic appears to be assuming in Western and Southern Asia, and in some parts of Europe. We hear of isolated cases in London and Paris, and are told that various measures are being taken to prevent its appearance in Berlin.

The severe famine from which many portions of Western Asia are now suffering, is thought to be nourishing the pestilence there, where it has for sometime been raging with much severity. It is evidently creeping westward slowly but surely, having already gained a firm footing in Russia, become virulent in Poland, and made its appearance in a dangerous form in the Eastern provinces of Prussia. We have even heard rumors, by telegraph, of cases in some of the Atlantic cities; but later reports have not confirmed its presence this side of the Atlantic—the supposed cases have been shown to have been cholera morbus.

It is thought, at the East, that the summer is so far advanced, that the epidemic can hardly get a foothold there this season; still careful preventory measures are strongly urged upon the officials of the various Atlantic cities.

### An Ill-Boding Insect.

Of course all sorts of rumors may be expected in such a crisis, and all the numerous crop of theories will be again brought out for ventilation—indications of its approach, theories as to cause and preventions and remedies to be employed. The latest thing in regard to the indications of its approach is that of the appearance of an ill-boding insect, called the "Pestilence Fly," which is said to have suddenly made its appearance in New York.

This insect is said to be the precursor of the cholera or other pestilence. It is a little longer than the common house fly, and has very transparent wings of a slightly purple hue. The head is perfectly round, of a dark brown color, with a white mark on the face. The body is divided like the wasp's. The round portion next the head, to which the wings are attached, is of an invisible green. The remainder of the body from the waist to the tail presents alternate rings of black jet and a pale yellow. It has six legs which are longer than the common fly's.

HEALING QUALITIES OF RED CLOVER BLOOMS.—Our correspondent "Jeigh Arrh" writes of his experience in the curative qualities of red clover, as follows: "Some years ago I had on my instep an obstinate, watery sore. I healed this over every two weeks on an average for some time. I made a strong infusion of red clover blossoms, and boiled it down to a salve. Three days use of this salve would reduce the sore, and produce a skin apparently healthy and fresh as a child's; but a few days would redevelop the evil. I believe an infusion of red clover heads used instead of tea, would prove a powerful and useful alternative; but would not advise its external use in cutaneous disorders. The facts as set forth above, you may rely upon."

CIRCULATION OF BLOOD IN THE SYSTEM.—The blood circulates through the body in about two minutes. The amount of blood will not vary much from twenty-four pounds, so that twelve pounds pass through each minute. It is estimated that the blood moves at the rate of two and a half feet in a second, or at about the rate of two miles an hour.

GENTIAN ROOT.—It is said that a little coarsely cut gentian root, well masticated (the saliva being swallowed), taken after each meal, will soon cure one of all desire for tobacco chewing. Gentian is the basis of most of the tobacco antidotes advertised.

OVERTASKED BRAINS.—Our citizens generally are deeply ignorant of the comparatively large number of business men of the city who have been taken to the Insane Asylum at Somerville for treatment, of late years. The excitements of trade, resulting in overtaxed brains, or pecuniary losses, have brought this about. Whenever such men disappear from 'Change or the counting room, it is generally given out by their friends that they have gone to Europe for the benefit of their health. A few recover after a considerable period of treatment, but to others the world is over after a blank book. A good many women, too, of the high circles of life, find here a resting place to linger for a few years, and then go down into the valley. The asylum at Somerville was never better patronized than at the present time, which fact is a striking illustration of the rapidity with which some of our business men live and die. That some men and women are confined at this place who are more sane than those who place them there, is also true. Money in the present and prospective, family difficulties, or something of that sort, is often at the bottom of this involuntary imprisonment, for which there seems to be no legal remedy.—*Boston Cor. Chicago Journal.*

REMEDY FOR DIARRHEA.—The following simple remedy for chronic diarrhea is from a medical work by Dr. Fancher: Take two pounds of the bark of the root of blackberry, and a suitable quantity of water; boil for two hours, then pour off the liquid; then add more water; continue to boil and pour off till all the strength is extracted; then strain, and add all boilings together; simmer to two quarts; strain, add four pounds of loaf sugar, and when cold, add half a pint of the best French brandy. Dose, a tablespoonful three times a day, fasting. If it does not arrest the disease in a few days, gradually increase the dose as the stomach can bear.

Another and more simple remedy is as follows: Put a teaspoonful of wheat flour in a tumbler of water; beat until it foams, and drink immediately. If the patient is thirsty, more water may be added. It should be taken four times a day—before meals, and on going to bed.

THE TEETH.—It is said the teeth have a higher office than is commonly assigned them—that of merely crushing or masticating the food. They are to be regarded as endowed with a tactile sense, a discriminating faculty, corresponding to that possessed by the muscles and nerves of the eye and ear. Teeth, it is remarked, have an extreme delicacy of discernment, both as to whether the objects comminuted be suitable as food, or such as will irritate the delicate lining of the oesophagus. How speedily do the teeth detect the smallest particle of cinder that has found its way into a freshly baked biscuit, and yet both are pulverized with much the same force and sound.

CHILDREN'S COLDS.—The following is an excellent and safe remedy: Take onions, slice thin, and sprinkle loaf sugar thickly over them; put in the oven, and simmer until the juice is thoroughly mixed with the sugar. It makes a thick syrup, very nice to take. Give a teaspoonful as seems to be needed, four or five times a day.

### Opium Culture Successful in Tennessee.

The Nashville Union says that opium is being successfully and profitably cultivated by several persons in the neighborhood of Nashville, Tenn., and thinks the State will soon be independent of the foreign supply. The crop of 1870 proved a failure owing to the lateness of the planting. Dr. J. W. Morton, who has greatly interested himself in the business and who is also growing it himself, will realize from this year's crop at the rate of from 50 to 75 pounds per acre, on which there will be a handsome profit. He obtained his seed from Calcutta.

Rev. F. Pitts, also of Nashville, has now been growing opium for three years. He obtained his seed from Smyrna. The seeds first tried did not do so well, and his crops were not a success. His crops have done well this year. He plants on good land, and cultivates much like cotton. One man can readily cultivate four acres, but it requires several to gather the crops; the season for gathering is short, lasting only about two weeks, and occurs about the middle of June. We offer these statements as an encouragement of our California growers and, with the Union, hail every man as a benefactor who can teach us to be self-sustaining—can teach us to make use of the riches that a bountiful Providence has bestowed upon us.



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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## San Francisco:

Saturday Morning, Sept. 9, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Sept. 6, 1871.—Legal Tenders buying 88½; selling, 89. Gold in New York to-day, 113½.

## Table of Contents.

Edson's Steam Recording Gauge, Ill.; Mining in Arizona.....	145
MECHANICAL PROGRESS.—To Select Building Stone; Selenitic Mortar; New Kind of Paper Hangings; Breakage of Watch Case Springs, etc.....	146
SCIENTIFIC PROGRESS.—Telescopes; Artificial Butter; Engraving by Electricity; The Philosophy of Sleep Walking, etc.....	146
Salt Lake City, U. T.; The Percheron Horse; Horse Work; How to Drive a Young Horse, etc.....	147
MINING SUMMARY.—California, Idaho, Montana, Arizona, Colorado, Utah, British Columbia, and New Mexico.....	148
Market Review; Mining Shareholder's Directory, etc.....	148
Patents and Inventions; Trial of the English Traction Engine.....	150
Mechanics' Institute Fair.....	151
GOOD HEALTH.—The Health; The Teeth, etc.....	151
On the Assay of Gold; Preventing Scale in Boilers.....	152
Hill's Gang Plow, Ill.; Loss of Quicksilver; Notes at the Mechanics' Institute Fair.....	153
Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.....	154

## Preventing Scale in Boilers.

The formation of scale in boilers is the source of very considerable expense in the way of increased consumption of fuel. Recipes without number have been given for its prevention, and the want of success attending the use of the most of them has created a prejudice in the minds of very many engineers against any new "anti-scale compound." Such a prejudice is perfectly natural, although not altogether logical.

The water used for generating steam contains ingredients in varying quantities for forming scale, which must be removed in one way or another. Blowing off frequently is a measure always to be recommended. But this is not enough in the generality of cases, and, as it gives the engineer considerable trouble, is too often neglected. The need of some material for the prevention or removal of scale is most urgent.

We notice at the Mechanics' Institute Fair an exhibit of a compound which ought to attract considerable notice. This is Rickard & Durden's Anti-Scale Compound. Without desiring to praise it above its merits, we may still say that the amplest proof has been given of its usefulness in England, where it has been thoroughly tested, and also in this city where it has been tried of late. Under these circumstances we feel justified in calling attention to it, and urging engineers to give it a trial at least. If the compound is powdered, before introduction into the boiler, it sometimes causes foaming, which it does not do when introduced in small pieces. This fact we state merely by way of caution and of urging its judicious use. A fair trial is all that can be asked for any new thing, and a fair trial of this compound ought to result, according to numerous testimonials, most advantageously to the user. That the material has merit enough to deserve such a trial, we feel confident.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

(Expressly for the Press.—Continued.)

The first step to be taken in estimating the value of gold dust is to carefully examine, to see if there is any visible evidence of counterfeit, or as it is called "hogus dust." If all from the same locality, the dust will have a uniform color. Any suspicious looking pieces should be set aside and cut with the cold chisel while lying on the small anvil. A fair sample of the whole lot of gold dust under examination should then be placed in the evaporating dish, the suspected piece being placed on top, and nitric acid poured over it. If any reaction takes place such as effervescence, or evolution of red fumes, or if the acid becomes colored, there is foreign matter present and you may suspect adulteration or counterfeit.

Place two watch glasses, one on a piece of white paper, and the other on black or other dark color, then with a glass rod convey a few drops of the acid from the dish to each. To the white, add a drop or two of ammonia, a blue color indicates copper. To the other add hydrochloric acid in the same manner. If a white curdy precipitate forms, which does not dissolve upon the addition of warm water, silver is being dissolved from your gold dust in the evaporating dish. If your dust is of very low grade, these metals may dissolve in very small quantities. But such gold dust would be easily detected by its inferior color, and its appearance.

If no action is observed, even after heating the dish, there is no counterfeit present. Counterfeit gold dust is sometimes so heavily coated with pure gold, (by galvanic process) as to protect the base alloy from the action of nitric acid, hence the necessity of cutting all suspected pieces before submitting to the action of nitric acid.

To remove the acid from the gold, wash it with water thoroughly and dry it over the spirit lamp.

Select from your samples several pieces to represent as fair an average as possible, and divide each of them with the cold chisel. Then with each piece—using the fresh cut edges—make parallel marks on the touch stone, and lay the pieces of gold on the table before you in the same succession. Wet the gold streaks on the stone with nitric acid, using a glass rod or the stopper of the coin test. If no reaction takes place and the streaks look as bright and metallic as before, the gold is at least 640 fine, and probably finer even than that; wipe the stone gently with a piece of soft rag and apply the test acid in the same manner; if there is still no reaction the gold is finer than 750; if any action is observed, the fineness is between the two. If the golden streaks are not acted on by nitric acid or by the test acid, take a touch needle marked 700 and make a similar streak on the stone below those made with the samples. Compare the color, and then progress with other needles both copper and silver, using a higher mark each time until you hit on a color corresponding to that of the samples. You will thus obtain an approximate knowledge of the quality of your gold.

But should nitric acid cause any change in the appearance of the streaks on the touch stone, and your preliminary test in the watch glass indicated copper, try the copper needles and apply them in the reverse order until you hit the color, and find a needle the streak of which is acted upon in a similar manner by nitric acid. If silver was indicated, use the silver needles. Considerable practice and a good eye are required to obtain accurate results with the touch stone; but this is soon acquired.

Gold dust and retorted amalgam should also be examined for mercury. This is done by putting a small fragment into a closed tube. Drop the piece into the open end and see that it falls quite to the bottom. Place the end of the finger loosely over the open end and heat the closed end where the piece of gold lies, in the flame of the spirit lamp. If mercury is present;

a bright ring will form in the tube above the assay. Upon examination with the magnifying glass the ring will be found to be minute globules of mercury. To make certain, you can make a scratch with a file below the ring, and break the end off. Place the end of the now open tube into a few drops of water in a watch glass, and then with a feather or small stick, the sublimate may be brushed into the water, and by gently shaking be caused to form into a single globule, in which form you cannot mistake it for anything else.

A person skilled in the use of the blow pipe and who possesses a good balance, can make perfectly accurate assays of bullion or gold dust. But the results will be only approximate unless the whole lot is melted into a bar. But as this is not always convenient, the following plan may be adopted.

Pour the gold dust out on a large and perfectly clean sheet of paper, and with the ends of the fingers mix it thoroughly, occasionally lifting the edges of the paper to throw it together, and again mixing it to insure uniformity. Then from various parts lift small portions until more than an ounce is collected. This is best done with a flat knife, or by pinching it up with the thumb and forefinger. From this weigh out accurately an ounce Troy; place this in a small crucible, put in a little borax, carbonate of soda and nitrate of potash, and melt the whole together. This may easily be done in a blacksmith's forge or in a stove: when perfectly melted set the crucible aside and when cold break it and remove the gold button. This must be freed from clay by light blows of the hammer on its edges and subsequent washing. When perfectly clean weigh it again. The loss is water, iron, sand, mercury and other impurities, which may be assumed to be the average of the entire lot.

Cut off a small portion from each side with the cold chisel, wrap the pieces in paper to prevent them from flying, and hammer them down on the anvil until thin enough to cut with scissors. Place upon charcoal and heat with the blowpipe flame until the paper is burned away, taking care not to melt the gold. Cut with a pair of shears sufficient to weigh exactly the tenth of a gramme, or 100 milligrammes. A portion should be taken from each of the pieces. The weighing must be conducted with the greatest accuracy, for the success of the assay depends upon precise manipulation.

Place the assay in the center of a piece of lead foil about one-half an inch square, fold the lead over the gold, and with the fingers carefully form it into a ball and set it aside. Prepare two assays like this.

Take the cupel support in your left hand, and having lighted your spirit lamp, lift one of the cupels by placing the end of the forefinger in the concave part, and holding it lightly with the thumb, place it in the loop of wire. Heat the cupel by urging the whole of the flame upon it, producing, in doing so, a roaring sound. This is best done by holding the point of the blowpipe outside the flame. When the cupel is hot, which is known by its becoming white after first blackening, lift with the pliers one of the assays and place it in the center of the cupel. A steadily pointed blue flame is directed upon the assay until it melts and begins to oxidize, when the flame is changed and the cupel moved farther from the lamp. Cupellation goes on rapidly if the flame is directed against the cupel beyond the assay, and not directly upon it; and if the cupel is kept cool, that is to say at the lowest temperature at which the lead can be kept fluid.

It will be found advantageous to discontinue the flame for an instant occasionally and to direct it by short puffs at times. The exact point can only be attained by removing the cupel from the lamp and returning it gradually as may be required. As the cupellation goes on the head becomes more spherical; little patches of lead oxide form and pass to the cupel, becoming thinner until at last the gold bead can be seen through the slight film of oxide. When nearly finished the molten gold spits up towards the flame. At last at the proper moment, learned only by practice, an instant cessation of the blast causes a flash, and a bright yellow golden bead remains in the cupel. When cold the bead is removed from the cupel with the pliers and placed flat side down on a clean piece of paper. It is then grasped with the pincers and squeezed by a strong pressure. This generally removes all the adhering bone ash and renders the button fit for weighing. To make sure, turn it over, examine it with the magnifying glass, and brush it with the small brush. If anything should be found attached to it, a squeeze at right angles with the

first will remove it. Place the button in the pan of your balance and weigh it carefully. Its weight in milligrammes is the total fineness in hundredths; for instance, 74 milligrammes would be 740 fine. With a good balance thousandths can be weighed, each tenth of a milligram being .001.

The button probably contains silver. To ascertain the fineness of gold, it must be subjected to a second process. The weight of the head being registered, a cavity is made in a piece of charcoal, which is held by means of the charcoal support. In the cavity is placed the gold button with four or five times its volume of pure silver and both metals melted together, before a strong blow-pipe flame. The alloy must be thoroughly melted. When cool, it is wrapped in paper, hammered flat, heated red hot, to burn away the paper, cleaned with a stiff brush and placed in a test-tube with nitric acid, which is boiled over the spirit-lamp until no more red fumes are given off; a black powder, which is gold—will remain. The tube is then filled up with distilled water, which is poured off carefully so as not to permit any of the gold to pass off with it. This must be repeated and the tube filled full for the third time, with distilled water; a dry cup is then placed over the tube like a cap, and both inverted together. The gold falls to the bottom of the dry cup and the tube is carefully removed.

The water is then poured from the gold in the dry cup, which is dried at a gentle heat, and then heated red hot by the aid of the blowpipe. During the process, the dry cup may be held, by the aid of the pincers, over the flame of the spirit lamp, which is urged upward against it from below. When the gold has assumed its metallic color, the operation is finished. When cold, the gold is brushed into the pan of the balance, and its weight noted.

The results may be written as follows:

Suppose the weight of the cupelled button to be in milligrammes, 74, the total fineness will equal.....	740
Weight of gold powder 69, equals.....	690
Fineness of silver.....	950
Or, fineness of gold.....	690
Fineness of silver.....	950
Total fineness.....	740

Results still more accurate may be obtained by the aid of a balance capable of indicating tenths of a milligramme.

[To be continued.]

## Patent Infringement Decisions.

The suit in the United States District Court, of Michael Siebert vs. W. T. Garratt, for alleged infringement of patent, was decided on the 1st inst.; the jury bringing in a verdict for the plaintiff, with damages laid at one dollar. The suit was brought to restrain the defendants from the application of certain improvements in the lubrication of steam engines, patented by Siebert. The lubricators are on exhibition at the Mechanics' Pavilion, and the jury went to see the machine in operation before rendering the verdict. A stay of ten days was granted by the court.

In New York city on the 1st inst. Judge Blatchfield ordered a decree in favor of R. A. Telghman, of Philadelphia, against Roland Mitchell, for \$229,000 for infringement of his acid and glycerine patent. This is the largest decree for infringement of patent ever granted in New York.

## Queries for Mechanics.

EDITORS PRESS:—Following the idea suggested by Mr. E. H. Davies, in your issue of Aug. 12th, I beg leave to propound the following:

Why are the eyes made so small, and of a round shape, in striking hammers for drilling, and in rock breaking hammers?

Timber becomes very brash by exposure to our climate, and the frequent breakage of handles is a serious inconvenience. The eye of a hammer should be as wide as they are now made, and elongated, or of an oval shape, about the same as the handle, where it is grasped by the hand, except that it should be a little smaller. MINER.

MR. L. P. MCCARTY will next week commence a corresponding and business tour in California for the Press. We bespeak for him such friendly reception and courteous assistance as our friends have ever found it pleasant to mete out to our traveling assistants, while engaged in advancing the cause of industrial progress.



Hill's Patent Eureka Gang Plow.

We herewith present an illustration of a gang plow invented by Mr. Frank A. Hill, of Marysville, and for which a patent has been obtained through the agency connected with this office. The patentees claims: "First,—an improved arrangement of levers for raising and lowering the frame on the axle, so as to throw the plow in and out of the ground. Second,—an improved manner of attaching the upright standard which connects the plows with the frame to the landside, so as to secure strength and stability; and third,—an improved manner of attaching the pole to the axle so that its direction and position can be readily changed, when desired. They are made of the best material, under the immediate supervision of the patentee; they are of very light draught, the dead force usually brought against sharp, curved mold-boards being entirely done away with. They can be readily adjusted to cut a furrow of any required depth. The principle which regulates them is so simple that they are easily controlled by a boy. They are adapted to any soil, working equally well in sand, clay, gravel or adobe. Each plow is warranted to give satisfaction or no sale.

These plows have been in use three years, and are giving very general satisfaction. They took the first premium at the State Fair, Sacramento, in 1870; at the Northern District Fair Marysville, in 1870; and at the Upper Sacramento Valley Fairs in 1870 over all competitors."

They combine durability, lightness, cheapness and light draught. The plans combined in their structure have been the result of experiments with a view to manufacture a perfect plow. They are now in use on hundreds of ranches in Yuba, Sutter, and other counties, and in every instance, so far as we have learned, they have given perfect satisfaction. The proprietors feel that in offering this plow to the public, they have given them an article that is its own best advertisement where used. They are also manufacturing a single plow which cuts from twelve to fourteen inches in depth, turning a furrow from sixteen to twenty inches wide. This plow will turn  $3\frac{1}{2}$  acres per day. Hill & Knaugh, Marysville, manufacturers, keep both varieties on hand. These plows may now be seen on exhibition at the Mechanics' Institute Pavilion, and will also be shown at the State and District Fairs.

Borax.

The richest borax deposits in the United States are to be found in Nevada. Among them are deposits belonging to one company which cover an area of 20,000 acres, at Columbus, Fish, and Toal Flats or Lakes, Esmeralda county, 140 miles south-east of the C. P. R. R. This is said by blacksmiths, who have tried it, to be superior to the best English borax. The crude mineral consists of horate of lime, and borate of soda, mixed with sand, mud, carbonate of soda, chloride of soda and magnesia. The supposition is that warm springs of horacic acid rise in these flats or lakes, and that the acid uniting with the lime of the country rock, or with the soda formed in the flats, forms the borates. At some points, a few feet below the surface, the water is quite hot. There are also borax deposits in Lake county, Cal., which yield a very good article. The annual consumption of this useful substance in the world, is estimated at 11,000 tons.

THE YOLO COTTON EXPERIMENTS.—We understand that Chas. F. Reed, Esq., President of the State Agricultural Society, instead of the Railroad Company, is making the experiment in cultivating cotton at Knights' Landing, Yolo county.

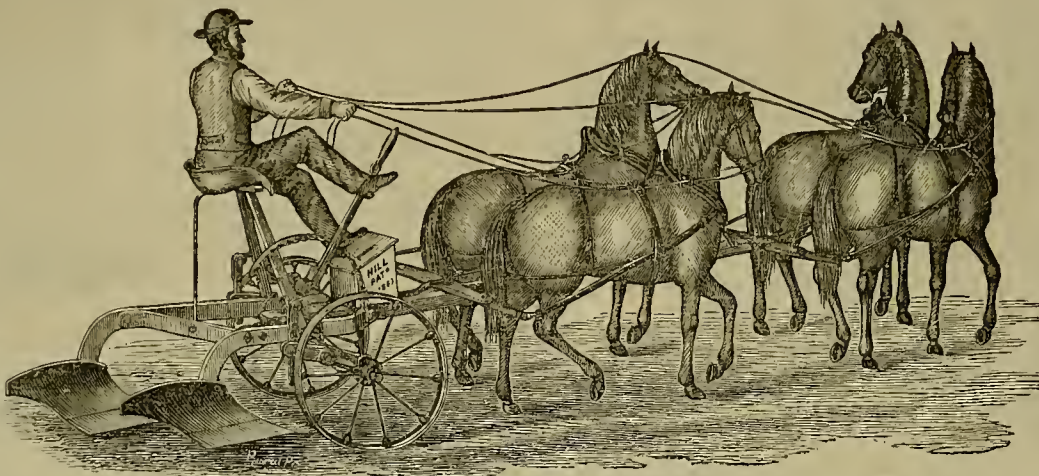
An inch of rain falling on an acre of ground supplies it with 100 tons of water.

The Loss of Quicksilver.

Some time ago, a correspondent asked the readers of the SCIENTIFIC PRESS for opinions as to whether the loss of quicksilver in silver amalgamation, was in proportion to the amount of ore treated, or to the amount of silver extracted. The question being put rather to correspondents than to the editors, we have waited a considerable time for answers to the query. Only one, however, has been sent, and that was to the effect that the loss is proportional to the amount of silver extracted, where the treatment was properly conducted.

There is a saving clause in the above answer which puts it beyond the reach of discussion. In the working of silver ores, as actually conducted, however, the loss of mercury will be found to be in proportion to the gross amount of ore worked, rather than to the amount of silver obtained. For example:—Five tons of ore yielding \$100 per ton will occasion a greater loss than one ton of the same character of ore which yields \$500 per ton.

The loss of mercury is partly mechanical, and therefore proportional, to this extent,



HILL'S PATENT EUREKA GANG PLOW.

to the amount of material treated. It is also partly chemical, and affected not only by the silver mineral, but also by many of the other constituents of the ore. While it is influenced by the quantity of silver, it is also influenced by other metals and combinations, and these and mechanical causes have so much greater effect relatively that we naturally find the result as above stated.

It would be interesting to have a collection of facts as to the amount of loss of mercury. One can get general figures easily enough; but these figures are generally rather guesses, than facts carefully ascertained. The amounts naturally vary greatly at different places. We know of one mill, running on tailings, where there is said to be no loss at all,—whether due to the mercury already in the tailings or to a particular process (not made public), is not yet ascertained with absolute certainty. If any of our kind readers can give us real facts in the case, we should be happy to publish them. Mr. Almarin B. Paul lately gave us some figures on the Wastage of Precious Metals. These figures are really valuable, and we should like to hear more of them, either from Mr. Paul or some other of our contributors.

THE ASIATIC RINDERPEST.—Dispatches from Shanghai to the State Department show there is some possibility that the dreaded rinderpest, shut out from the United States by legislative enactments relating to the Atlantic seaboard, may effect an entrance on the Pacific coast. The disease is passing through Siberia to the Eastern shores of Asia. It is suggested that, as there is considerable traffic in skins between the extreme north of that continent and America, germs of the pest may be thus transmitted to the United States.

NOTES AT THE S. F. MECHANICS' INSTITUTE FAIR.

[In these notes we have room only to notice briefly such articles as come specially under our observation. More replete descriptions of the most interesting and instructive exhibits will be given in the Press at our greater leisure hereafter. No classified catalogue being published we do not in this number give complete notices in any particular department.]

THE EUREKA EARTH CLOSET, exhibited by R. R. Strain & Co. is an improvement invented by Mr. Strain, one of our pioneer mechanics. Their manufactures include commodious as well as stationary dry earth closets, simpler, cheaper, and of better construction than any imported article from the East, where the use of such closets is being rapidly extended.

BLACK LOCUST WAGON HUBS from wood of California growth, are exhibited by E. Soule, an enterprising wagon manufacturer of Sacramento. His California made wagons are worthy of special attention.

THE "UNION DAIRYMEN" PATENT CHEESE VAPOR apparatus for operating curd economically, will be explained by T. G. Anderson, agent, of Gilroy.

F. B. Lamm has an improved milk cooler, which we are satisfied is a good thing for

tumbler, and other operative parts of the old lock are on the outside and unguarded.

TAY'S PATENT WINDOW CURTAIN is one of the California inventions taken up by Eastern manufacturers. A. C. Anstin represents it for the Meriden (Ct.) Curtain Co. The shades are held and adjusted by a simple arrangement of cords and double acting pulleys, so as to cover the whole, or any part of the window, as desired. Once introduced we believe it will be very popular.

CALIFORNIA MADE ROPE, of various sizes, and of the best quality comes from Mossrs. Tubbs & Co.'s extensive factory on the Potrero. We recommend hay makers and all other rope users on the coast, to examine the goods at the warehouse, and keep their money as near home as practicable.

THE FRENCH GAS ENGINE imported by Mr. F. L. A. Pioche occupies a prominent place and affords power for the large Adams' press of the *Daily Fair Gazette*, published by Francis & Valentine. A charge of common illuminating gas, mixed with an equal quantity of air, is introduced into each end of the cylinder alternately, and discharged by connection with constantly burning gas jets at the proper moment by the working of suitable valves. It is quite a large but compact machine, and supposed to be an improvement on the Lenoir engine which has been worked successfully in the San Francisco *Daily Courier* office for several years. The gas in the latter is fired by electricity.

THE WIRE WORK of J. M. Eckfeldt & Co., comprises some very handsome rustic patterns of ornamental work for out door use.

NEW ZEALAND FLAX is shown by W. H. Webb, S. F., who can probably afford information and perhaps seed.

SALT LAKE CITY, through John W. Young, sends (besides rich minerals), samples of cotton, Camel's hair, and a fragment of Fremont's boat used on the lake in 1843-44.

PAPER UMBRELLAS AND OVERCOATS, waterproof, are among the useful Japanese novelties. The coats are made of different colors and qualities with the appearance of being durable and suitable for wear, and without inspection would pass for oil cloth. Their raw material for making ropes, paper, and a fabric similar in looks to cotton cloth, appears superior, and in the land and hands of Yankees would doubtless be introduced throughout the world.

IF THE JONES PLOW is of as hard steel as claimed by its introducer from Naperville, Ill., Mr. O. C. Ely, it will become better known to our farmers.

A STEEL TRUCK is shown with a self-acting ratchet which prevents the backing of its wheel when the handles are tilted up to receive the load. The wheels are free to move forward at all times, and backwards when the handles are not highly elevated. It is believed to be a new and excellent device. Mr. A. V. Smith, offers liberal terms for his patent for want of means to manufacture properly himself.

CHAS. O. FARCIOT exhibits an original and finely furnished lathe for small and precise work. Also his little wonder of a steam engine, made of Washoe silver and exhibited on the DAILY FAIR Press counter at the previous fair.

THE PACIFIC IRON WORKS exhibit cast iron pipe made (by their newly introduced method), in iron moulds, whereby its product is greatly cheapened. Their

[Continued on page 156.]



## DOMESTIC ECONOMY.

### Delicious Summer Beverages.

Very few of our readers, we imagine, have any idea of what they are actually swallowing when they sip the "delicious summer beverages," which are served up, sweetened and toned by the various syrups in use. To those who are not posted we commend the following:—

Butyric ether is the base of all fruit syrups. Butyric ether is made sometimes of rancid butter, though old rotten cheese is generally preferred, the loudest variety of Limburger affording the best quality of ether. The cheese is treated with sulphuric acid, and if a particularly nice and finely flavored ether is desired, a few chips of old leather are added. Any sort of leather will do, but old hoots and shoes are preferred. Strawberry syrup is made of twelve parts of butyric ether, and one part of acetic ether, diluted with alcohol water. A pint of real strawberry syrup added to a gallon of mixture will improve the syrup, but it is not absolutely necessary; color with cochineal. Raspberry syrup is made after the same formula, except that a pint of real raspberry syrup is added, if the chemist has it. If not, he takes a jar of his strawberry syrup, colors a little darker, and changes the label. Sarsaparilla is the simplest of the syrups. Molasses is its base, with a little essence of sassafras and wintergreen added. A few roots of sarsaparilla "biled" in the mixture will do no harm and no good. Vanilla syrup is made of tonqua beans and fresh hay. Pineapple syrup is made of butyric and formic ether. Formic ether was formerly made by the action of sulphuric acid on red ants, but latterly is made of glycerine and soap. Peach syrup is made of bitter almonds and acetic ether. Twenty drops of oil of bitter almonds will kill a man. Nectar is formed by mixing various syrups and adding a little Madeira wine, the wine being compounded of neutral spirit, logwood, sugar and raisins. Lemon syrup is the purest that can be obtained. It is made of citric acid and sugar, with perhaps a few lemon peels. The citric acid is made of lemons. For people who are not particular what they drink, the above are "perfectly harmless" beverages.

Farmers and others who make their own beverages, have the satisfaction of knowing positively what they are drinking, besides getting them at a greatly reduced cost.

**HOW TO KEEP A CHURN FROM FROTHING OVER.**—Happening one day to visit the house of a friend who kept a cow and made butter, I there saw a simple method he used to overcome the great trouble of all butter-makers using the old-fashioned upright churn, viz: Take the body of the churn and cut a groove around the inside of the mouth, about three inches from the top, and three-eighths of an inch deep, and then remove half the thickness of the wood, making a shoulder all around; then take the cover and cut it to fit nicely inside, and you have now done away with all the old nuisances of cloths, tubs, pans, etc., heretofore required to save the cream that flowed over. Anyman, almost can do this, or the churn may be taken to a carpenter and treated for a few cents. Many an idea of less consequence than this is patented, but all may take this one for what I gave for it.—*Home Journal*.

**HOW TO CLEAN SMOKY WALLS.**—A New Bedford correspondent of the *Hearth and Home* writes as follows: After trying various other expedients for cleaning walls that have been badly smoke-stained, I finally used a strong solution of common washing soda, purchased at the corner grocery-store; and although the smoke had struck through the "hard finish," he says he soon had the satisfaction of restoring the walls to perfect whiteness. The soda-wash can be successfully applied, he adds, either before or after whitewashing.

**HOW BRIDGET MENDED THE STOCKINGS.** We were amused the other day,—says the *Portland Tribune*,—at a lady friend's account of the manner in which her Irish servant girl mended her stockings. When a hole appeared in the toe, Bridget tied a string around the stocking below the aperture and cut off the projecting portion. This operation was repeated as often as necessary, each time pulling the stocking down a little, until at last it was nearly all cut away, when Bridget sewed on new legs, and thus kept her stockings away in repair.

### Shaking the Table-cloth.

"Mercy on us! Carrie, where did all these pieces of bread and cheese, of cake and sandwiches, dried beef and pie, come from? Enough to make some hungry child a meal."

Carrie looked out of the window. It was her father who had spoken. He was standing on the icy pavement before the door, regarding her curiously.

"Oh," said she, "it is where I shook out the table-cloth."

"Where you shook out the table-cloth, my daughter!"

Carrie's mother was a very careful woman; but she had been sick a day or two, and the work had been done by Carrie.

Her father was all ready for a walk, his overcoat buttoned to the chin, his fur cap drawn over his ears, and an umbrella in his hand; but he turned and came back into the house and sat down. Carrie knew that a lecture was coming. Now, like most small girls and some large ones, she was not fond of lectures; but in the present case it could not be helped, and she knew she deserved it; so she submitted with the best possible grace.

"My daughter, if you want to grow up to be a careful, prudent woman, and do honor to your mother's training, you must be careful how you shake the table-cloth. Many a man, despite his hard toil and labor, has been kept a poor man for life, just because his wife did not know how to shake her table-cloth."

"If you want to have something to help the poor and needy, the aged and infirm, and such as are not able to take care of themselves, whom the Saviour said we should always have with us; and whosoever we would, we might do them good, be careful how you shake your table-cloth."

"If you want to have means to do good in any of the many ways that are always at hand; if you want to have something to lay by for a sick or rainy day; if you want to have money to buy hooks and magazines, that you may be able to store your mind with useful knowledge, be careful how you shake your table-cloth."

"In short, if you want, when you come to be a woman, and begin life for yourself, to have things comfortable around you, and be independent and enjoy a competence, you must be careful how you shake your table-cloth."

**MIXED SALADS.**—Salads are chiefly composed of lettuce, mustard, cress of various kinds, sorrel, parsley, green onions, the tops of young spinach, corn salad, mint, endives, celery, radishes, young beets, boiled beet-root, watercresses, etc. All or any of them should be fresh gathered, and when nicely trimmed, repeatedly washed in salt and water, and well drained. The smaller salads should be put in a clean cloth, and slightly shaken, but not pressed. They should then be arranged in a salad bowl; the celery, also divided, put in the center, and the smaller salads, such as radishes, mustard, and cress, placed between. When salad sauce or dressing is used, it should not be mixed with the salad, but put in the bowl first, the salad cut in small pieces and laid lightly over it, and the top ornamented with the boiled whites of eggs cut in rings, and slices of beet root; or the same may be served separately.

**CRACKED WHEAT.**—For a pint of the cracked grain, have two quarts of water boiling in a smooth iron pot, over a quick fire; stir in the wheat slowly; boil fast, and stir constantly for the first half hour of cooking, or until it begins to thicken and "pop up;" then lift from the quick fire, and place the pot where the wheat will cook slowly for an hour longer. Keep it covered closely, stir now and then, and be careful not to let it burn at the bottom.

Wheat cooked thus, is much sweeter and richer than when left to soak and simmer for hours, as many think necessary. White wheat cooks the easiest. When ready to dish out, have your molds moistened with cold water, cover lightly, and set in a cool place. A handful of raisins added with the wheat is nice. Eat warm or cold, with milk and sugar.—*Herald of Health*.

**BLACK TEA.**—Is best boiled five or six minutes. Use a little larger quantity of leaves, as they are lighter than the green. Some persons prefer the two kinds mixed; it makes a pleasant beverage. Use only the best teas. Souchow is considered the best black; the Hysons are the best green teas; Pearl and Imperial Gunpowder are very fine. Good tea has an agreeable odor. Keep it well protected from the air.

### Domestic Receipts.

**COLD DRESSED VEAL.**—Mince fine the fat and lean of cold roast veal, season it with grated nutmeg, lemon peel, pepper and salt, moisten it with a little stock or gravy, and a beaten egg; butter a pudding pan, put in the mince and press it firmly; put on a close cover, set it in a pan of scalding water and let it boil an hour or two. Then turn it from the pan, rub it over with the beaten yolk of an egg, then sift on bread crumbs thickly, and brown in the oven, basting it occasionally with melted butter.

**TO SAVE FRUIT WITHOUT SUGAR.**—Put in wide-mouthed bottles; fill up with cold spring water. Put them in a vessel of water up to the neck; boil half an hour; tie bladders or oil skin over tight, or cork and seal while hot. Let them set until cold. Keep in a cool place. Use as soon as opened. Pack hay around while boiling, to steady them.

**CRAB-APPLE PRESERVES.**—Make a syrup of equal weights of sugar and apples. Let the apples simmer in water until their skins come off easily. Then remove the core with a sharp knife. Boil the apples in the syrup till tender; then spread them on dishes to cool. Afterwards put them in jars, pouring the syrup over them.

**A SURE WAY TO REMOVE TEA STAINS.**—Mix thoroughly soft soap; rub on the spots, and spread the cloth on the grass where the sun will shine on it. Let it lay two or three days; then wash. If the stain is not all out, it will disappear in the second washing. If the spots are wet occasionally while lying on the grass, it will hasten the bleaching.

**HOP BEER.**—Take one quart of hops, three quarts of wheat bran, and three quarts of molasses; boil them in three gallons of water for an hour. Strain the mixture; turn into pails or kegs; when lukewarm, add half a pint of yeast; let it ferment over night, and bottle next morning. Tie down the corks tightly, and in two days it will be fit to drink, and will keep so, if tightly corked. It is nearly as good as beer made with malt.

**ROOT BEER.**—Take spruce boughs, black birch bark, sarsaparilla, wintergreen leaves, sassafras, yellow dock, and dandelion roots; boil all together in a large kettle, with a handful of hops and two quarts of molasses. When boiled enough—two hours or so,—strain through a sieve, cool, and add a pint of yeast. If not very sweet to the taste, add more molasses. Let it work over night, and bottle. Secure the corks tightly, and it will foam well. The same can be made in larger quantities, and put into a 15-gallon cask, and worked from the bung-hole for a few days, but it would not foam so well as if bottled.

### Mechanical Hints.

**BLEACHING SHELLAC.**—Boil any quantity of shellac in water in which borax has been previously dissolved. Continue the heat till not a particle of shellac remains whole, strain the liquor, and then pass through it very slowly a stream of chlorine gas from a heated retort, until the product becomes quite white, then slowly evaporate and wash the residue several times in cold distilled water.

**GUMS FOR VARNISH.**—It is stated that the most valuable gum for varnish making is obtained from Zanzibar. The next in value comes from Benguela, while a gum used for inferior qualities is known as Kowrie.

**A HINT.**—An English coach painter lately wrote to a brother residing in this country, asking of him, that he would ascertain what method American painters adopt in order to produce the brilliant finish which he had noticed on American coaches sent over to England. The reply was "the Americans build up a firm foundation, free from tackiness, and the finishing coat thereby retains all its brilliancy. At home you use every coating too elastic, from the priming up."

**TO GIVE WOOD A GOLD, SILVER, OR LUSTRE.**—Grind about two ounces of white beach sand in a gill of water, in which half an ounce of gum arabic has been dissolved, and brush over the work with it. When this is dry, the work may be rubbed over with a piece of gold, silver, or copper, and it will in a measure assume their respective colors and brilliancy. The work may be polished by a flint burnisher, but should not be varnished.

**TO IMPROVE GILDING.**—Mix a gill of water with two ounces of purified nitre, one ounce of alum, one ounce of common salt; lay this over gilt articles with a brush, and their color will be much improved.

## LIFE THOUGHTS.

BE praised not for your ancestors, but for your virtues.

A MOTHER'S prayer will draw up from the depths of the sea.

A SMILE may be bright while the heart is sad. The rainbow is beautiful in the sea.

A FATHER'S blessing cannot be drowned in water, nor consumed by fire.

SELF-LOVE exaggerates our faults as well as our virtues.

MISERY leads to despair; aggrandizement to presumption.

To-morrow has no overflow to atone for the loss yesterday.

WE use riches as children use toys—to amuse us till we fall asleep.

HE who gives for the sake of giving, of thanks knows not the pleasure of giving.

KNOWLEDGE raises us above the brutes but love erects us above ourselves.

MEN and women make the world, as head and heart make the human life.

A PERSON who undertakes to raise himself by scandalizing others, might just as well sit down on a wheelbarrow and wheel himself.

THERE is no funeral so sad to follow as the funeral of our own youth, which we have been pampering with fond desires, ambitious hopes, and all the berries that hang in poisonous clusters over the path of life.

THREE-FOURTHS of the difficulties and miseries of men, come from the fact, that most want wealth without earning it, fame without deserving it, popularity without temperance, respect without virtue, and happiness without holiness.

HE who has his brain full of grand theories may awe his friends with fine words and flourishes, and seem to be a great man, but if he makes no practical application of his theories, he would amount to more if he went to sawing wood and talk less.

### Life Incident.

I once knew a lawyer, writes a lady, great in his profession and great as a man. He would pause on his way to the court house, where life and death, through God's permission, hung upon his words, to speak a word of comfort or counsel and give a needed dollar to an indigent hegger by the wayside; he would turn from a crowded court house, where hearts had laughed and wept at his bidding, and turn his steps homeward to romp and play with his children. Such a man I knew once. It was worth all of my life to have known him. This man died ere the full meridian of life shone upon his honored head, and I continued to know his widow. In course of years she married again, and raised up children by this marriage. It seemed to be quite a point with her to assure them that she loved their father full as well as the first husband. I thought I detected that this was as much to persuade herself as them, and felt curious to know the truth; so upon an occasion after she was done uttering these assurances I turned quickly to her and said: "Suppose an angel were to appear now before you, and say, 'Will you have your first husband back?' what would be your answer?"

In an instant the tears gushed from her eyes, her voice trembled, and with arms outstretched to heaven she exclaimed:

"I would say, oh, give him to me! give, give him to me!" The next instant her hands fell beside her, her head dropped back, and, pale as death, she murmured, "It was cruel, Susan!"

This was after she had been married twenty-three years to the second husband, and gray hairs crowned her brow with their pure glory; and I give it to show how long such a man as I have described lives in the hearts of those left behind, in unaltered love and honor. Oh, that earth possessed more such.

A WORD TO THE UNSUCCESSFUL.—Very few men are permitted to be successful; very few men are permitted to be wise; very few men are permitted to be eloquent; very few men are qualified to be statesmen; very few men are good for anything eminent; and even those that are eminent are men with like passions with every one else. Therefore be not discouraged because it is your lot to be in humble circumstances—because your work is insignificant in the eyes of men—because you are called to labor in obscurity. The time is coming when all earthly distinctions will be of very little account.



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Fig.1 Fig.2 Fig.3 Fig.4



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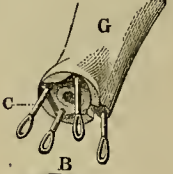
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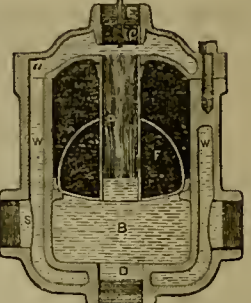
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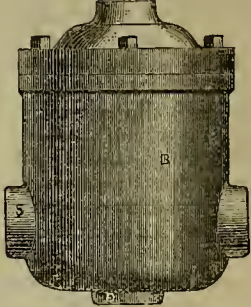
NO. 1.

The annexed engravings represent a Condenser in-  
tended to be attached to the ordinary steam pump,  
thereby bringing it within the class of low pressure, or  
more properly speaking, of condensing engines; the  
steam, when it has done its work in the cylinder, in-  
stead of being exhausted into the atmosphere, is con-  
ducted to the condenser, on its entry into which, it  
meets the water drawn by the pump, and is immedi-  
ately condensed.

The Cut No. 1 represents a vertical section of the  
Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the  
pump, and the flange S to the pipe leading to the well,  
or whatever source of supply the pump may have; W is  
a water jacket surrounding the main chamber of the  
condenser, B, and with which the suction pipe, S, com-  
municates, permitting a free circulation of water within  
the jacket and into the hollow cover or top through the  
series of openings, one of which is shown at A, and  
from thence into the body of Condenser, B, through  
pipe P, carried by float F; the pipe P also acts autom-  
atically as a valve to enlarge or contract the space  
through which the water enters it, by which means the  
possibility of the condenser being at any time flooded is  
avoided. The pipe P, it will be observed, also acts as a  
guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or  
lowered by means of screwed stem—shown coning  
through elbow in Cut No. 2—is for the purpose of in-  
creasing or decreasing the flow of water according to  
the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into  
cover at E; the exhaust steam is thus thrown directly  
into contact with the water entering the condenser on  
its way to water cylinder of pump through D. A  
vacuum being of course immediately formed, acts on  
the exhaust side of the steam piston, aiding it in its  
work. If at any time it is desirable to run the pump  
without the condenser, it is only necessary to turn the  
three-way cock, which is placed in the exhaust pipe,  
into such a position as to cause the steam cylinder to  
exhaust into the atmosphere; when this is done the  
pump is perfectly free from the condenser, and acts as  
if it were not attached. This condenser is specially  
useful for pumps running in mines, or any other po-  
sition where trouble is experienced in getting rid of the  
exhaust steam. Address  
H. L. BREVOORT,  
6v23-cowly 123 Broadway, New York City.

AMMONIACAL PREPARATION

—FOR THE—

Prevention and Removal of Boiler Scale.

MANUFACTURED BY THE

San Francisco Gas Company.

F. I. CURRY, Sole Agent, San Francisco Boiler  
Works, 123 and 125 Deale street, San Francisco.

This Preparation is proved by the experience of many  
of our best machinists and engineers to be a perfect cure  
for the vexatious and dangerous incrustation known as  
Boiler Scale. It is sold in 5-gallon cans at \$5.25 per  
can, or in cases of two cans each at \$10.50 per case.

The San Francisco Gas Company also manufactures

Carbonate of Ammonia.  
Muriate of Ammonia.  
Sulphate of Ammonia.  
Liquor Ammonia, Concentrated.  
Aqua Ammonia, F. F. F.  
Concentrated Crude Ammonia, for Ice  
Making and other manufacturing purposes.  
9v23-3m

W. H. GORRILL, Pres't. F. MALOON, Sec'y.

Pacific Bridge Company

Are prepared to build Wooden and Iron Bridges on  
SMITH'S PATENT TRUSS PLAN.  
Plans and specifications furnished to counties or per-  
sons desiring to build. Lithographs and prices sent on  
application.

Smith's Cast Iron Pier, durable as stone, and  
adapted to resist rapid currents, put in at low rates.  
Address PACIFIC BRIDGE CO.,  
3v23-3m-cow Oakland Cal.



[Continued from page 143.]

Wright's patent cut-off engine has now worked splendidly through two exhibitions.

TWO METALLIC BURIAL CASKETS exhibited by Craig & Son, inventors, were made in this city at Savage & Sons' Empire Foundry.

SPECIALLY WORTHY of mention are the designs and wood cuts of Crane & Curtis, young ladies deserving of the utmost praise for a noble example of usefulness and successful talent. The fine drawings on wood in their case are by their associate, Mrs. May Curtis Richardson.

A DOUBLE-SECTION SPRING BED, by R. J. Ordway, 1116 Market street, is a new invention and the most elastic sleeping apparatus yet out.

PICKS.—John Wright; shows his superior S. F. manufactured solid raised eye picks, viz:—drafting pick; drafting or quartz pick; surface or R. R. pick; pole pick.

J. H. CULVER has an ingenious machine for cutting twist mouldings rapidly, of various styles and sizes, and of any desired length.

AN AGRICULTURAL WREATH, by Mrs. J. D. Galloway, is a beautiful piece of fancy work, and shows how easily the most common things of nature can be wrought into beauty and elegance by skillful and tasty fingers.

WOODEN HORSE COLLARS.—This is a most useful and practical invention, the value of which is fully attested by a large number of farmers and others who have used it. Among the advantages which this collar is said to possess over those of the ordinary make, is the fact that it never changes its shape, always bearing where it was designed it should, and thereby avoiding the frequent cause of galls, sores, swellings, etc., resulting from the change of shape and bearing in stuffed collars. Wood moreover is a good non-conductor of heat, and is impervious to moisture—two important considerations in a horse-collar. It is easy to fit, and its length or width can be changed in a moment. It is fast being adopted into use by the government. Manufactured and sold by Wildman & Marble, No. 30 California street.

ARTIFICIAL STONE.—The Pacific Artificial Stone Co., under the Ransome patent, makes a fine display, suggestive of a new and important industry, that they have recently introduced upon this coast. They exhibit fountains, vases, steps, paving-stones of various colors and patterns, cemetery work, and building stone of diverse patterns, both plain and ornamental. The facility with which the sand of our hills is converted into the best and most durable kind of building stone, moulded with plastic to any form desired is truly wonderful. The stone work of the fine church now being constructed on Post street, is supplied by this company.

THE DRAWING of a hydraulic engine is shown by Chas. C. Rueger, one of our young mining educated Californians.

GARRATT'S STEAM CYLINDER LUBRICATOR can be better understood by examining the cut in our advertising columns, than by description here. Like its inventor and patentee, it is very popular with its familiar acquaintances.

N. SIEBERT'S EUREKA LUBRICATOR, is a meritorious California patented invention, handsomely manufactured by Weed & Kingwell, who have a creditable display of work from their Cal. Brass Foundry.

[To be continued.]

ELKO, NEVADA.—The traveler over a desert appreciates a good hotel. For this reason we are asked to mention J. D. Treat's excellent accommodations at the above named "city," where overland trains stop, for meals, going eastward west. Elko rejoices also in a new brick school-house. The C. P. R. R. hold the coal beds at this point which are said to be of important value.

### New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

NORTHERN HYDRAULIC MINING Co.—Trustees: W. H. Knight, W. H. Miller, H. C. Lee, Samuel Ambrose and J. K. Brett.

PLUTO MINING and METALLURGICAL Co.—Capital Stock, \$1,000,000 in 10,000 shares. Trustees: Edward Wolleb, Adam Hoag, and E. L. Loschenkohl.

LITTLE BUTTE CHANNEL GOLD MINING Co.—Capital Stock, \$100,000 in 10,000 shares. Trustees: B. O. Hodge, W. Ayer and J. H. Madison.

DRY DOCK TUNNEL and FLUMING Co.—Capital Stock, \$5,000,000 in 50,000 shares. Trustees: F. J. Potter, G. F. McPherson, John Skinner, F. D. Atherton and B. G. Lathrop.

SAN FRANCISCO BREAD MANUFACTURING Co.—Capital Stock, \$100,000 in 1,000 shares. Trustees: J. J. Haley, W. H. Gladwin and O. Geddes.

MARIN COUNTY WATER Co.—Capital Stock, \$600,000 in 600 shares. Trustees: W. T. Coleman, Chas. Mayne, C. J. Brenham, J. Mora Moss and M. J. O' Connor.

EMMA HILL TUNNEL and MINING Co.—Capital Stock, \$500,000 in 10,000 shares. Trustees: E. H. Shaw, J. M. Selover, W. S. Woodhull, G. W. Rose and G. H. Bradford.

GOLD RUN MINING Co.—Capital Stock, \$250,000 in 2,500 shares. Trustees: Joseph Badger, T. C. Walker and J. M. Maguire.

SAN JOAQUIN and KINGS RIVER CANAL and IRRIGATING Co.—Capital Stock, \$10,000,000 in 100,000 shares. Trustees: I. Friedlander, J. Bensley, A. H. Ross, N. Luning, W. S. Chapman, J. Mora Moss and C. W. Howard.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper or blank slip, WITHOUT THE NAME and RESIDENCE of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 76 William street, N. Y., or 16 Dearborn street, Chicago, Ill. 25v1-12mbp

LADIES DESIRING to procure a FIRST-CLASS SEWING Machine against small payments may apply to No. 294 Bowers, 157 E. 26th, 477 9th Ave., New York. Good work at high prices if desired. 21v1-12mbp

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught.

Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TAIT, Oakland, Master Fifth Class.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

SUCCESS IN BUSINESS.—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24 Post street, San Francisco. This is the only school on the Pacific Coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which cannot be discussed here. Call at the College and examine its workings. If unable, send for circular, and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address E. P. HEALD, President, Business College, San Francisco, Cal. 10v23bp-3m

FOR COUGHS and THROAT DISORDERS, USE "Brown's Bronchial Troches," having proved their efficacy by a test of many years.

"I have never changed my mind respecting them from the first, excepting to think yet better of that which I began thinking well of."

REV. HENRY WARD BEECHER.

N. Seibert's Eureka Lubricators for steam cylinders are acknowledged by 150 engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time, in the saving of oil over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8v23-3m

Opera Glasses, Pebble Spectacles, and Eyeglasses, in great variety, wholesale and retail. C. MUELER, Optician, 205 Montgomery street, Russ Block, San Francisco. 7v23-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoa, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma and a pure concentration of the purest elements of nutrition distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. fe23-ly

PSYCHOMANCY.—Any Lady or Gentleman can make \$1,000 a month, secure their own happiness and independence by reading Psychomancy, Fascination or Soul Charming, 400 pages. Full instructions to use this power over men or animals at will, how to Mesmerize, become Trance or Writing Mediums, Divination, Spiritualism, Alchemy, Philosophy of Omens, and Dreams, Brigham Young's Harem, Guide to Marriage, &c.; 200,000 sold. Sent by mail in cloth for \$1.25, paper covers, \$1.00. The Philadelphia Star speaking of the book says its author is HERBERT HAMILTON, B. A., the celebrated Psychological lecturer, and the publisher, T. W. EVANS, one of the oldest Perfumers and Publishers in the city, the mention of whose name is a sufficient guarantee of the merits of the work. MR. EVANS has spent \$50,000 already in advertising and getting out this extraordinary book. Skeptics in Psychology read and be convinced of this wonderful occult power.

NOTICE.—Any person willing to act as Agent will receive a sample copy FREE. As no capital is required, all desirous of genteel employment should send for the work, enclosing 10 cents for postage, to T. W. EVANS, 418 Eighth street, Philadelphia, Pa. ma4-lamst

### ACTIVE MEN!

With Experience in Canvassing business, can now obtain lucrative and permanent employment by DEWEY & CO., Patent Agents and Publishers of the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS, No. 414 Clay street, S. F.

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Cash Assets \$1,750,000.  
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The Great Equivalent.—The world may be safely challenged to produce so perfect a simulation of any thing in nature, as

Tarrant's Seltzer Aperient  
Is of its original, the Seltzer Spring of Germany. The Aperient, based on a correct analysis of the Seltzer Water, is even superior to the manufacture of Nature herself, because it contains all the active medicinal properties of the spring, unalloyed by any of the inert and useless particles found in all mineral fountains. THE GENUINE ARTICLE BEING SECURED, you have the Seltzer Water of Europe, purified and perfected, and probably the best, the most genial cathartic and antibilious preparation on the face of the earth.

SOLD BY ALL DRUGGISTS.



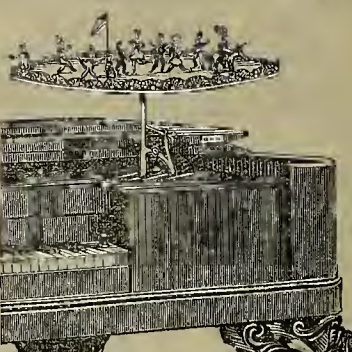
CHOLERA.  
HOW TO CURE IT.  
At the commencement of the Diarrhea, which always precedes an attack of the Cholera, take a teaspoonful of the Pain Killer in sugar and water (hot, if convenient), and then bathe freely the stomach and bowels with the Pain Killer, clear. Should the diarrhea or cramps continue, repeat the dose every ten or fifteen minutes until the patient is relieved. In extreme cases, two or more teaspoonfuls may be given at a dose.  
The Pain Killer, as an internal remedy, has no equal. In cases of Cholera, Summer Complaints, Dyspepsia, Dysentery, Asthma, it cures in one night, by taking it internally, and bathing with it freely. Its action is like nuxom, when externally applied to Old Sores, Burns, Scalds, and Sprains. For Sick Headache and Toothache, don't fail to try it. In short, it is a PAIN KILLER.  
Directions accompany each bottle.  
The Pain Killer is sold by all dealers in Medicines. Prices, 25 cents, 50 cents and \$1 per bottle.

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By the Best of Artists,  
At this Office.

G. L. WILD & BRO.'S  
PATENT DANCING TOY FOR PIANOS,



A Scientific Musical Toy by which inanimate figures are Charmed into Life by Music!

Illustrated in No. 9 of the "Scientific Press," and also in No. 9 of the "Pacific Rural Press." The PATENT RIGHT for the Pacific States for sale.

Address G. L. WILD & BRO.,  
420 Eleventh street, Washington, D. C.  
Inventors and Manufacturers, and Dealers in Pianos and Musical Merchandise generally. 9v23-3m

RISK OF  
BOILER EXPLOSION EASILY AVOIDED  
BY USING  
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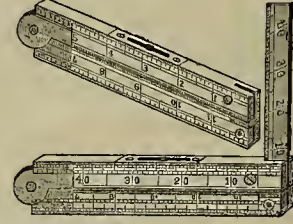
Steam Recording Gauges,  
which prompt a constant attention to duty, and are so secured by combination locks that they cannot be tampered with. These are the only gauges that afford a

CONTINUOUS RECORD  
of the fluctuations of steam pressure, and are therefore indispensable to all steam users, as well as absolutely necessary for the safety of the travelling public. The pressure is recorded on a movable chart. They are adopted by the U. S. Government, and required to be used on all steam vessels.

MADE SOLELY BY  
The Recording Steam Gauge Co. of N. Y.  
91 LIBERTY STREET, NEW YORK.

Manufacturers also of Superior Plain Indicating and Excessive Recording Gauges, particularly adapted for Locomotives. 10v23-1f

STEPHENS & CO.,  
MANUFACTURERS OF  
U. S. STANDARD BOXWOOD AND  
IVORY RULES.



ALSO EXCLUSIVE MANUFACTURERS OF  
L. C. Stephens' Patent Combination Rule.

This cut represents the COMBINATION RULE, which comprises a Foot Rule, Spirit Level, Try Square, Bevel, Plumb, Slope Level, etc.

It is made of the very best quality of Turkey Boxwood, heavily bound with brass, and is graduated with mathematical accuracy. The Square is adjustable, and can be tested and made perfectly true by the aid of a small screw-driver, but this is seldom required. In its application as a Slope Level it is especially adapted for Miners' use, as it shows the PITCH to THE FOOT, and DEGREE OF INCLINATION at once. It is six inches long when folded, by one and three-eighths wide, and three-eighths inches thick, the cut being just one-fourth size.

By the use of one of these, a builder, mason, carpenter, or other workman, can always have in his pocket the most valuable of his apparatus used in construction, combined in a portable, useful and cheap form. "Scientific American."  
Price by mail, prepaid, \$4. For agents' terms, address STEPHENS & CO.,  
Hartford, Conn. 9v10-23-3m



# Mining and Other Companies.

Owing to the time necessary to wait the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

**Alameda Coal Mining Company—San Francisco and Alameda Counties, State of California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 17th day of September, 1871, an assessment of fifty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 Battery street (first floor), between Clay and Market streets. Any stock upon which said assessment shall remain unpaid on the 17th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 30th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
M. PHILLIPS, Secretary.  
Office, 409 Battery street, San Francisco, Cal. se14w

**Bellevue Mining Company—Location of works, Ophir District, Placer County, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of August, 1871, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. CRONISE, Secretary.  
Office, 409 California street, San Francisco, Cal. se2-1w

**Gold Run Mining Company—Location of works, Gold Flat District, Nevada County, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at their office, No. 325 Sansome street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
U. C. FALMELL, Secretary.  
Office, 325 Sansome street, San Francisco, Cal. se2-1w

**I. X. L. Gold and Silver Mining Company.**  
Location of works, Silver Mountain District, Alpine County, Cal.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of August, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at their office, No. 230 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 14th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
R. U. CORNELL, Secretary.  
Office, 230 Clay street, San Francisco, Cal. au12-1w

**Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of August, 1871, an assessment of two dollars and fifty cents (2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, at the office of the company, Room No. 2, No. 418 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
GEO. R. SPINNEY, Secretary.  
Office, Room No. 2, third floor, No. 418 California street, San Francisco, California. au12-5w

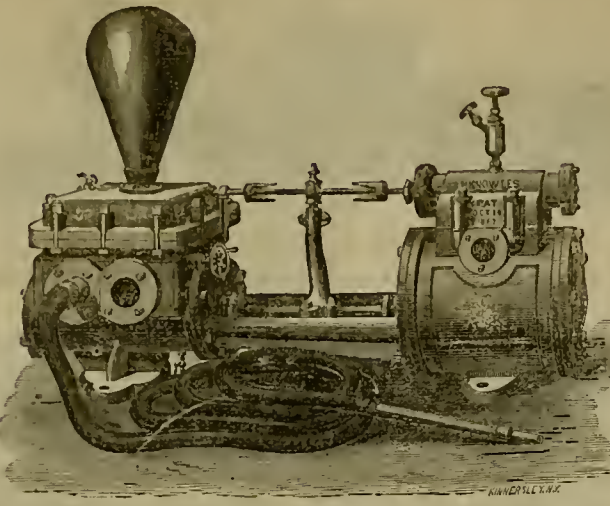
**Mina Rica Mining Company—Location of works, Anbar District, Placer County, State of California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of August, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, No. 418 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 3d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
GEO. R. SPINNEY, Secretary.  
Office, Room No. 2, third floor, No. 418 California street, San Francisco, California. au12-5w

**Nevada Land and Mining Company—Location of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko county, State of Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of August, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, No. 418 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. se2-3w

**Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of August, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 11th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
J. W. CLARK, Secretary.  
Office, 409 California street (up stairs), San Francisco, California. au12-4w

**Quail Hill Mining and Water Company—Location of works, Quail Hill, Calaveras county, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of August, 1871, an assessment of twenty dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 16th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 16th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. CRONISE, Secretary.  
Office, 409 California street (up stairs), San Francisco, California. au12-4w

## KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rugs or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, CAL., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly,

A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, OREGON, April 22, 1871.

Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.

Yours respectfully,

G. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly,

C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, New York, May 26, 1871.

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street—Gentlemen: In reply to your inquiry as to your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly

GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, New York, June 3, 1871.

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully,

WM. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDATUA, Pa., June 1, 1871.

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc.,

EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., HELTERSTOWN, Northampton County, Pa., May 26, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the quality of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.

Yours very respectfully,

G. W. WHITAKER, President and Superintendent.

OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyl., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly,

P. SAULT, Superintendent.

CENTRAL AND WESTERN PACIFIC AND CAL. AND OREGON RAILROADS, OFFICE SUPT. W. M. P. & M., SACRAMENTO, CAL., July 8, 1870.

A. L. FISH, Esq., San Francisco—Dear Sir: Your favor of the 2d inst. is received, asking my opinion in regard to the Knowles Steam Pump, and would say I have used the Knowles Steam Pump for several years, and consider them for all purposes the best steam pump in use. Yours truly, E. F. PERKINS, Supt. M. P. & M.

OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to all you have claimed for them, and I will add that I think they have no equal. Yours, etc., JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand.

24x22-60w

**North America Consolidated Mining Company—Location of works, White Pine Mining District, County of White Pine, State of Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 5th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 30th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. au12d

**POSTPONEMENT—The day of deeming stock delinquent on the above assessment is hereby postponed until Thursday, the 28th day of September, 1871, and the sale thereof until Wednesday, the 18th day of October, 1871.**  
By order of the Board of Trustees.  
WM. H. WATSON, Secretary.

**St. Patrick Gold Mining Company—Location of works, Ophir District, Placer County, Cal.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of August, 1871, an assessment of five (5) dollars per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 20th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 9th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. CRONISE, Secretary.  
Office: 409 California street, (up stairs) San Francisco, Cal.

**Tecumseh Gold, Silver and Copper Mining Company—Location of works, Gopher District, Calaveras County, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of August, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, No. 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 20th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 9th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. CRONISE, Secretary.  
Office: 409 California street, (up stairs) San Francisco, Cal.

**Names. No. Certificate. No. shares. Amount.**  
Louis Hazelquist..... 18 2 \$10 00  
Henry H. Sahlberg..... 27 8 40 10  
Henry H. Sahlberg..... 12 5 60 00  
A. F. Bilay..... 68 5 25 00  
Darius Hawland..... 82 2 10 00  
Christina Hartmann..... 84 5 25 00  
Victor Otten..... 104 5 25 00  
Fred Rasmussen..... 109 5 25 00  
H. Brechhoff..... 76 5 25 00  
And in accordance with law, and an order of the Board of Trustees, made on the 28th day of July, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Thursday, the 28th day of September, 1871, at two hours of 12 o'clock M., of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
F. J. HERRMANN, Secretary.  
Office, 516 Kearny street, San Francisco, Cal. se2-3t

**Jeinsen Lubricator Company—San Francisco, Cal.**

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of August 1871, the several names set opposite the names of the respective shareholders, as follows:

**Names. No. Certificate. No. Shares. Am't.**  
John Gardner..... 28 50 \$25.00  
John Gardner..... 45 75 37.50  
James O'Neill..... 46 70 35.00  
E. Von Jeinsen..... Trustee 32 15 7.50  
Wm. J. Campbell..... Trustee 33 36 18.00  
Wm. J. Campbell..... Trustee 34 60 30.00  
Wm. J. Campbell..... Trustee 31 16 7.50  
Wm. J. Campbell..... Trustee 35 60 30.00

And in accordance with law, and an order of the Board of Trustees, made on the 1st day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 428 California street, on the 28th day of September 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
CALBET T. FAY, Secretary.  
Room No. 7, 428 California street. Sep19

## BANKRUPT.

From Auction, a large lot of Ladies' Solid Gold Hunting Case Watches, full jewelled, detached lever movements, \$28 each, usual price \$40. More expensive Ladies' Hunting Watches, and elegant Chairos, from auction, at proportionate prices. Goods sent C. O. D. Y. privilege to examine. F. J. NASH, 712 Broadway, N. Y.  
"Worthy the fullest confidence."—Christian Advocate, N. Y.  
"All that Mr. Nash says may be relied upon."—Christian Work.  
"We have the utmost confidence in the above goods."—Liberal Christian.  
"Certainly cheap and the quality reliable."—Christian Intelligencer.  
"Reliable."—Moore's Rural New Yorker. 10v23-3m

## CAUTION.

### BETT'S CAPSULE PATENTS

are being infringed by importation of Capsules made in con-  
vention of his rights, which necessarily are numerous  
BETT'S being the original inventor and Sole Maker in the  
United Kingdom.  
1, WHARF ROAD, CITY ROAD, LONDON, AND  
BORDEAUX, FRANCE.

## The California Powder Works

No. 314 CALIFORNIA STREET.

SAN FRANCISCO.

Manufacturers and have constantly on hand

## SPORTING,

## MINING,

## AND BLASTING

## POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.  
We have been awarded successively

## Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

## HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.  
16v20-3m JOHN F. LOISE, Secretary.



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets.

SAN FRANCISCO

IRA P. HANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

## Steam Engines and Boilers,

MARINE AND STATIONARY,

## IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTON'S CELEBRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.

## FULTON

## Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

## STEAM ENGINES,

Quartz, Flour and Saw Mills,  
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

GEORGE T. PRACY,  
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.



These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

## STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY,

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

## Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURERS AND SOLE AGENT FOR  
Pracy's Celebrated Governor.  
TURNING LATHES, Etc., constantly on hand.  
4v23tf

## PACIFIC

## Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

## RAILROAD AND OTHER IRON

## Every Variety of Shafting,

Embracing ALL SIZES OF

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

## HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron. 9v143m

## THE RISDON

## Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.

CAPITAL.....\$1,000,000.

Corner of Beale and Howard Streets,

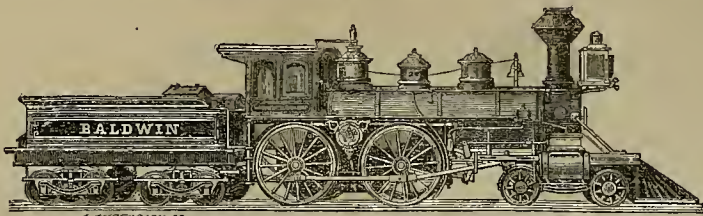
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

## Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,  
JOSEPH MOORE, Joseph Moore, Chas. E. McLane,  
LEWIS B. MEAD, John N. Risdon, Secretary.WM. H. TAYLOR.....President.  
JOSEPH MOORE.....Vice President and Superintendent.  
LEWIS B. MEAD.....Secretary.  
24v17-qy

## BALDWIN LOCOMOTIVE WORKS.



M. BAIRD &amp; CO., Philadelphia,

## MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

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EDWARD LONGSTRETH.

WILLIAMS, BLANCHARD &amp; Co., Agents, 218 California street, San Francisco, Cal.

apl-cow26t

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

## BOILERS

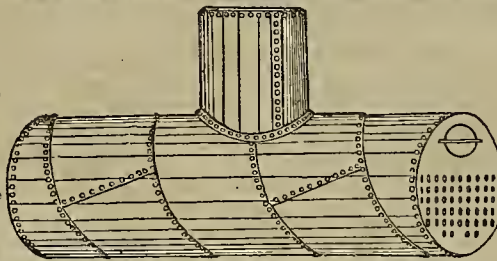
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

## SPIRAL BOILER.



Sheet Iron Work

of every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

## To Coal Operators, Miners and Railroad Corporations.

[YOUR ATTENTION IS INVITED TO]

## THE GRICE &amp; LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. &amp; L. were the PATENTEE'S AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

## HUGHES' PATENT

## REMOVABLE GLOBE LANTERN.



Since the time when King Alfred made the first lantern by surrounding a candle with a transparent casing of horn, this class of appliances has been one of the greatest utility and most extended use. Among the latest improvements in its construction is that illustrated in the accompanying engravings, and designed to secure the threefold object of providing for the easy cleansing of the glass portion, the secure retention of the upper in place upon the lower part of the lantern, and the affixing of the hall to the top of the lantern in a durable and efficient manner. The base of the lantern is provided with the usual detachable lamp, and at one side has hinged to its upper edge a wire frame designed to carry and protect the glass portion or body of the lantern, and at the upper end of which is the cylindrical top, perforated in the ordinary manner to permit the escape of the products of combustion from the lamp. Arranged at that side of the base opposite the hinge is an angular spring-catch so applied as to catch over the annular lower rim of the wire frame, and in conjunction with the hinge, to hold the said frame firmly in place upon the base as required when the lantern is in use.

This Lantern is offered as



The Best and Most Desirable in Use.

all things considered. Its price is reasonable, and when once tried no other will be accepted.

Individuals, Dealers, Railroad Companies, and all persons and institutions about to purchase Lanterns, should inquire for this kind; and if not for sale in your locality, address the inventor for circular of full description, price list, etc.

Patented August 10 and December 28, 1869, by

Address 1811 Sidney street, East Birmingham, Pa.

JOHN HUGHES.

3v23-2t am6m

## UNION IRON WORKS,

Sacramento.

## WILLIAMS, ROOT &amp; NEILSON,

MANUFACTURERS OF

## STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1

SACRAMENTO CITY

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

7v23tf

I. L. MORTLHRAP, President.

## THOMPSON BROTHERS,

## EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard

San Francisco.

## LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

## JOS. THORNHILL,

## BRICKLAYER AND CONTRACTOR.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &amp;c., Orders left with C. W. WHITE, 47 Clay Street. JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

## McAFEE, SPIERS &amp; CO.,

## BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

2v21-tf

## Machinery.

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company gives a responsible guarantee that the purchaser shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Oam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and he all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

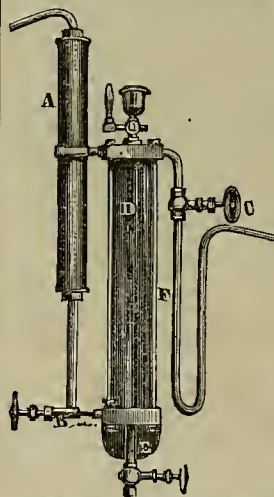
Ten of these Mills are now in operation.

For further particulars address

FURMAN R. WILSON,

San Francisco.

## GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION:—D, is a glass chamber which contains the lubricant. C is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the ejection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. 1e18-tf

## POWER, TAITER &amp; CO.,

MANUFACTURERS OF



## WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge),

PHILADELPHIA.

Woodworth Planers a Specialty.

2v23-1y

## J. M. STOCKMAM,

Manufacturer of

## PATTERNS AND MODELS.

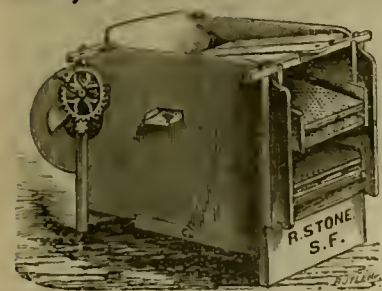
(Over W. T. Garratt's Brass Foundry).

Entrance, No. 120 Fremont street, San Francisco.

6v23-3m



THE PATENT  
Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out standard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

For further information apply to  
**R. STONE,**  
25v27-3m  
424 Battery street, San Francisco.

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AGENTS FOR

**Dufour & Co's.,**  
Celebrated Dutch Anchor brand Bolting Cloth; Snout Machines; Bran Dusters; Mill Picks; Mill Picks dressed; Mill stones repaired; rebuilt and balanced.

MANUFACTURERS OF  
French Burr Mill Stones, Portable Mills of all sizes, from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &c. Mills specially adapted for Salting Quartz.  
21v22-1yins

41 First st., San Francisco.

DEACON & CO.,  
MACHINE WORKS,

West side of Main Street,  
Between Mission and Howard..... SAN FRANCISCO.

ALL KINDS OF  
STEAMBOAT WORK, JOBBING AND  
REPAIRING DONE PROMPTLY.

Steam Engines, Pumps, and Mill Work.  
7v23-3m

CALIFORNIA BRASS FOUNDRY,  
No. 125 First street, opposite Minna,  
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ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

J. H. WEED\* V. KINGWELL.

SANBORN & BYRNES,

STAIR BUILDERS.

South Point Mills, Berry Street,  
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners Billiard Balls and Ten Pins. Fancy Newsels and Balusters.  
21v22-6m.

NELSON & DOBLE,  
AGENTS FOR  
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF  
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.  
13 and 15 Fremont street, near Market, San Francisco.  
4v14q

SHEET IRON PIPE.

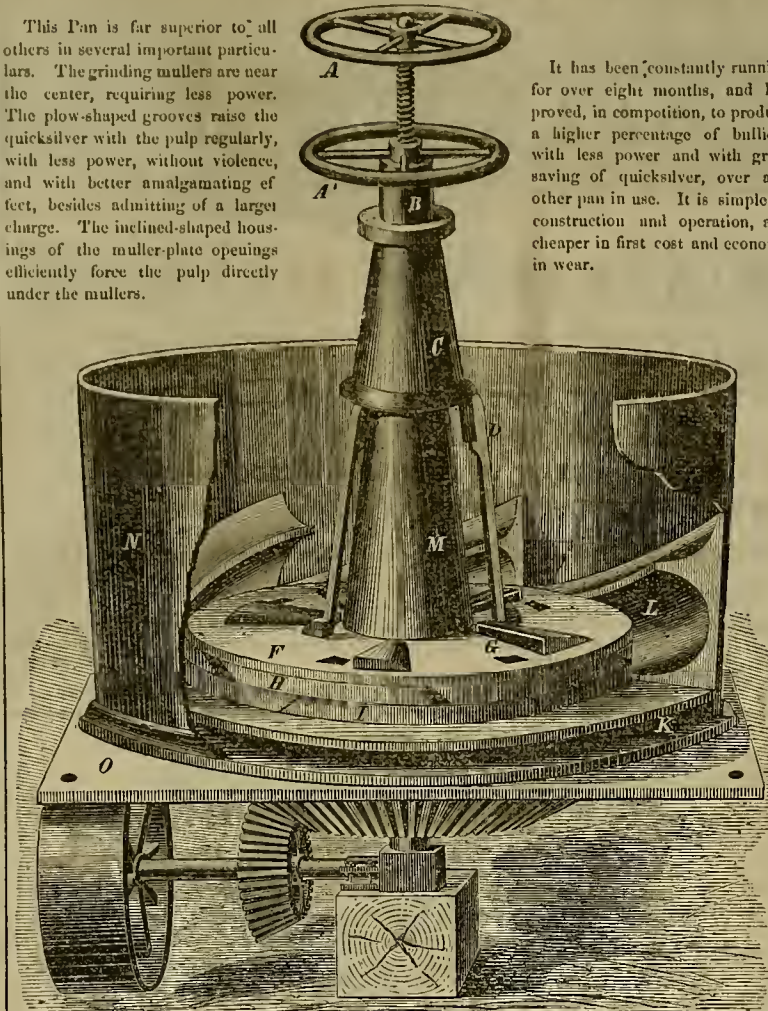
THE  
Risdon Iron and Locomotive Works  
Corner Howard and Beale Streets,  
Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

24v22-3m JOSEPH MOORE, Superintendent.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings efficiently force the pulp directly under the mullers.



It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation.  
15v20-1m.1amtf

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast, as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility having no cams, nor complex rotary arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using starting bar or any hand work whatever. The Blake Pump is extensively used on Railroads and Steamboats; in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Pump on Exhibition. The agents have recently imported several of the largest sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by BERRY & PLACE, Machinery Depot, 112 and 114 California st., San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.

Hand Power  
Lower detached.

CAMERON'S  
STEAM PUMPS.  
PICKERING'S  
Engine Regulators.  
GIFFARD'S  
INJECTORS.  
BARTOL'S  
STEAM TRAP.  
Surface Condensers.  
DAVID STODDART,  
114 BEALE STREET, S. F.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.  
W. WUSTHOFF, L. KRAMER.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.  
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SEVERANCE HOLT & CO.,

MANUFACTURERS OF  
Diamond-Pointed Drills  
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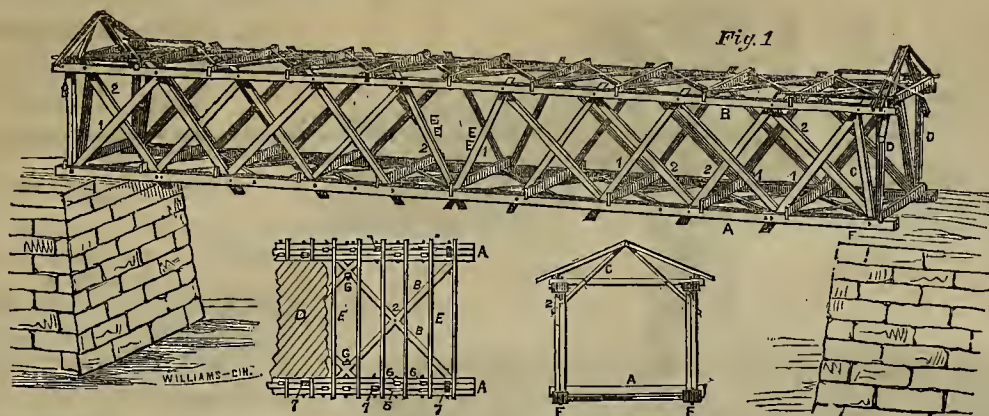
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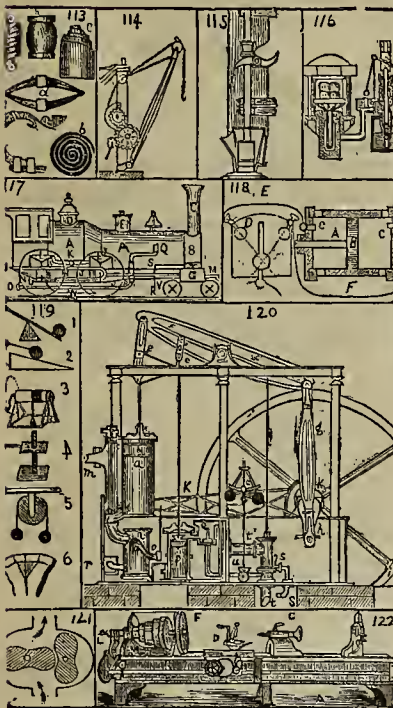


Plate V of Illustrated Mechanical Movements, described in Dewey & Co's 48 page circular of Information for Inventors. Sent post paid on receipt of stamp.

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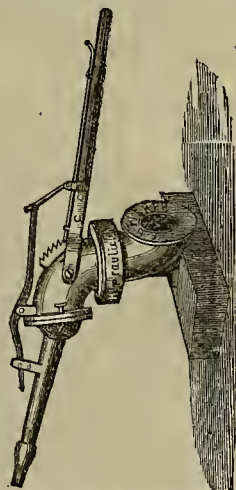
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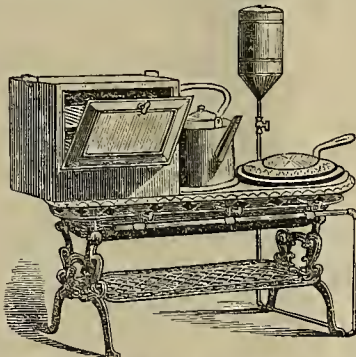


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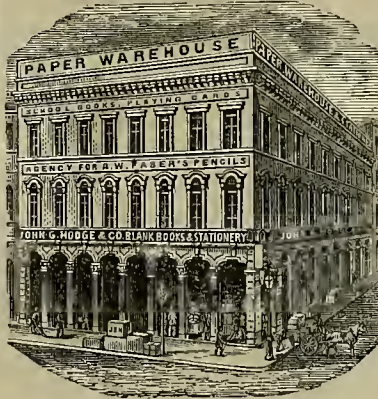
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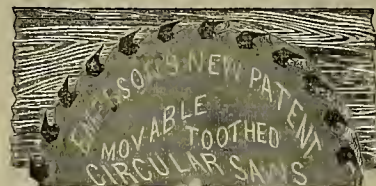
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AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, SEPTEMBER 16, 1871.

VOLUME XXIII.  
Number 11.

## THE ROASTING OF ORES.

Whatever will facilitate the roasting of ores must be of interest to our mining readers, and we take pleasure in presenting the annexed engravings and descriptions of two furnaces for their especial benefit. The amount of refractory ores on different parts of this coast, renders the use of furnaces imperatively necessary, and special attention is at present being paid to this department of metallurgy. These engravings and their accompanying description are from the latest proof sheets of Mr. J. S. Phillips' work entitled the Explorers', Miners' and Metallurgists' Companion, which will shortly be issued by Dewey & Co. Fig. 1 represents what is called the

### Cornish Calciner.

"The ore is charged in a pulverized dry condition, through the hopper of funnel, H, after the furnace has been brought to a suitable temperature, which varies from low red, to red, and yellow red, according to the constitution and associates of the ore.

It is regulated in its travel from the centre both by the varying speed of the rotating hearth, worked by more or less water on the driving wheel, as well as by the stirring knives that can also be governed or varied from without.

It will be seen that it is being continually turned over in its passage from the centre outwards, until it falls over its periphery by way of a suitable lip to the receiving plat. Now it should be examined to prove if the roasting has been complete, by its smell, or by the other means usually resorted to.

The roasted ores should be deposited in a place where they can be soured in water whilst hot, to wash away the soluble matter, and extract more sulphur by the formation of sulphide of hydrogen, which can be readily known by its foul smell.

There is but one object for this roasting, which is the volatilization of the deleterious element, so that the gold may be released; but this must be effectually performed, and cannot be hurried beyond certain limits.

Roasting of Refractory Ores, Preparatory to Chlorination for Gold by Plattner's Process.

As the mines of this country are generally on the slopes of hills and mountains, I would suggest the arrangement of the reverberatory hand-furnace shown by Fig. 2, as a cheap and efficient roasting and chlorinating furnace.

It will be observed that steps and hearths are placed each higher than the other, so that the pulverized ore may be charged through the funnel to the upper one, for preparatory warmth; and being raked transversely through the side door, it will naturally descend over this inclined hearth, and ultimately fall through the heated air to the next of the series (or through the chlorine gas, when it is desirable to chlorinize for the subsequent extraction of silver by pan or chemical process). Under the foot of each sectional arch, there should be transverse arches, as shown by the descending lines beneath, for supporting the roof; and the whole should be firmly secured by external bolts, as shown. To suit less refractory ores, other funnels may be placed over each lower hearth, so as to use but one, or more, as required.

All of the bed part may be of fire-bricks, or fire-rock, if more easily obtained; or good common brick may be made to answer for the bridge, hearths, and roofs, as the heat is but moderate.

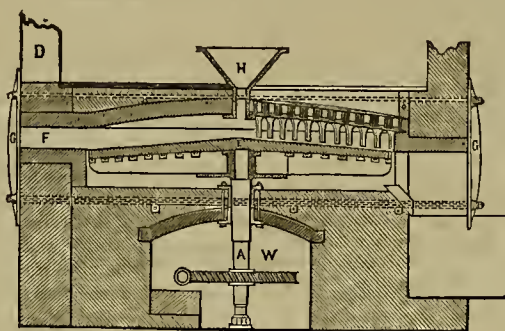
The foundation is cut in the side of a hill, of suitable shape for the hearths and ash-pit, and the draught is obtained by simply cutting and covering a trench up the slope of the hill, so that no other chimney is required. Catch-houses may be also excavated, when required for the arrestation and collection of the volatilized elements.

If there are no other advantages than

## Peace River Mines.—Caution.

The nature of the intelligence from this district is such as to discourage miners of any judgement, however nemadic their tastes and habits, from attempting the trip. The Montana papers all agree in dissuading prospectors from going, and furnish

Fig. I.



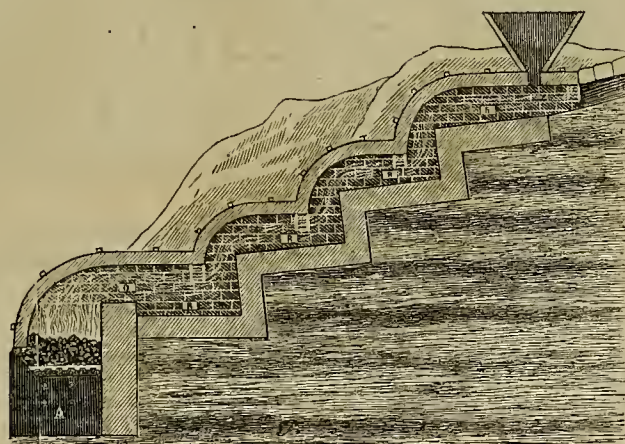
CORNISH ROTATING CALCINER.

that of warming the ore, as it lies on and falls from hearth to hearth, by otherwise wasted heat, it is considerable.

The ore should be charged in sufficient quantities as required, for being properly raked to fall at suitable speed through the

good and sufficient reasons for so doing, as there is nothing to warrant a general stampede to that cold region. Provisions are exorbitantly high; flour being 75c per lb.; beans, 90c; sugar, \$1.00; bacon, \$1.25

Fig. II.



HILLSIDE ROASTING REVERBERATORY FURNACE.

series, to suit the strength of ore, as governed by fuel and damper; and nothing but time and occasional stirring is necessary. The ores may be stirred on the upper inclined hearths by transverse rakes, as worked by machine motion, on bars that pass clear through both walls, to guide and carry the rakes across the furnace at their middles, so that the ore may fall down the incline after each motion."

TOBACCO grown in a cold climate, is stronger than that grown in a mild one, and a similar statement is true with regard to celery. So it appears from an article in the *Journal of the Pharmaceutical Society*, where it is maintained that in the less vigorous vegetation of cold climates, as compared with that of warm regions, the active principles of plants are more concentrated in the leaves.

to \$1.75; coffee, \$1.20; and other things in proportion, reminding one of the early days of California. In that respect a correspondent of the *Helena Herald*, writing from the Peace River mines, says: "There is no grass in the country, which is a swamp from one end to the other. There are about five hundred men here now, but they are leaving faster than others come. I met two hundred going away in one party the day I arrived, and I think if something is not struck shortly the camp will be deserted. A man cannot get a days work here for love or money." We would caution all those contemplating a trip to this new "excitement" to be patient, await developments, and profit by the lessons of former years, rather than risking their means and health by starting off to this cold and destitute section of country, where nothing can be gained but poverty and suffering.

## The Mining Report for 1871.

Mr. R. W. Raymond, U. S. Commissioner of Mining Statistics, being desirous of collecting for his next annual report, as much reliable information as possible, has sent circulars to superintendents of different mines, and to mining men in general; but strange to say, he finds serious difficulty in getting the desired information. Mr. R. says in his last report, that so far as the blanks were concerned,—the result was a great disappointment to him; but to the credit of the State, however, it is remarked that the fullest returns received were from California. The appropriation for the purpose of gathering statistics and other information for this report is quite inadequate to the end desired; and Mr. Raymond is necessarily compelled to ask assistance from those directly interested in the matter of getting reliable information.

The answers to these circulars are considered not only as a contribution on behalf of the mining interests, but also as an official and personal favor to Mr. Raymond. The queries are simple and brief, and such as would not take a person familiar with any particular locality, from which statistics are required, more than half an hour to prepare a few notes that would be very valuable for this report. The report itself will not be issued before April, 1872, and anything that may be marked as confidential will not be made public in any form, before it is published in the report.

Superintendents, mill owners, foremen, and prominent men, known to be interested in mining, who receive these circulars should comply with Mr. R.'s courteous request and assist him in his labor. We earnestly exhort parties who may receive the notice spoken of to answer it without delay, and add their mite to the general knowledge concerning the progress and condition of the mining industry in the Rocky Mountains, the Inland Basin, and the Pacific Slope. All communications from this State should be addressed to Mr. W. A. Skidmore, P. O. Box 1,513, San Francisco. This gentleman is acting as Mr. Raymond's deputy, and will be thankful for whatever favors he may receive in this connection.

THE "CHRONOPHER" is the name of an instrument which has been devised in England, to furnish correct time to places at a distance. It is proposed, by the use of this instrument—which will be stationed at the Greenwich Observatory, to flash from thence the true time, once a day, to all the principal cities in Europe, and to every post-office in England. Time guns will also be fired, bells struck, and balls dropped by the same current, at different and distant stations. Who says that the present generation takes no note of time?

A similar system to note and register the moment of earthquake movements in different parts of California would be more important than any advantages of the practice elsewhere.



## MECHANICAL PROGRESS.

### The Preparation of Fancy Soaps.

Fancy soaps, which are made in great variety for the toilet, are usually scented with some aromatic oils. For this branch of the trade the ordinary commercial soaps are used, after undergoing a process of refinement; or a soap is specially made for the purpose from almond oil, or the like. Much taste is shown by the best London makers in the selection and combination of the perfumes, which, along with the coloring matter, such as vermilion, yellow ochre, aniline, etc., are usually boiled up with the soap. To facilitate this operation, as a well dried soap does not readily melt, it is usually cut up into fine shavings, and after boiling is well worked under rollers until it presents a uniform appearance. If the soap is intended to be highly scented, or very extensive perfumes are to be employed, the cold process is adopted, as much of the strength of the scent is lost by boiling. In this case the soap is shredded as before, and the perfume and coloring matters well amalgamated with it by being worked in a mortar with a pestle. It is then divided into lumps, and roughly molded with the hand into something of the shape it is finally to assume. After being left on a rack to dry for about a week, it is pressed into a mold, which imparts to the cake the form and device which may be required, and when taken out, the edges are trimmed and the surface polished with the hand.—*Scientific American*.

### The Microscope for Testing Steel.

According to the experiments made by Mr. John Schott, the eminent chemist, the different qualities of iron and steel can readily be distinguished by means of the microscope. Thus, the crystals of iron are double pyramids, in which the proportion of axes to the bases varies with the quality of the iron. The smallness of the crystals and the height of the pyramids composing each element are in proportion to the quality and density of the metal, which are seen also in the fineness of the surface. As the proportion of carbon diminishes in the steel, the pyramids have so much the less height. In pig iron and the lower qualities of hard steel, the crystals approach more closely the cubic form. Forged iron has its pyramids flattened and reduced to superposed parallel leaves whose structure constitutes what is called the "nerve" of the steel. The best quality of steel has all its crystals disposed to parallel lines, each crystal filling the interstices between the angles of those adjoining. These crystals have their axes in the direction of the percussion which they undergo in the working. Practically good steel examined under the microscope has the appearance of large groups of beautiful crystals, similar to points of needles, all parallel and disposed in the same direction.

**NEW ATMOSPHERIC BRAKE.**—The Pittsburgh and Connellsville Railroad Company have been trying a new air brake, called the Smith patent, and claimed to be a better one than any now in use. This apparatus it is asserted, can stop in a few seconds a train of cars at full speed. At a recent trial on the Missouri Pacific Railroad, a train 300 feet long, traveling at a speed of 34 miles an hour, was stopped in 20 seconds, and at a distance of 1,000 feet from the point where the brake was applied. The train traveling at the same rate was subsequently stopped by brakemen with a hand brake; but 45 seconds were required and the cars continued in motion for 1,750 feet.

**TO PREVENT BOILER EXPLOSIONS.**—The record of English patents shows one designed to prevent explosions of steam boilers, which may be worth notice. This device consists in providing a hole in the upper part of the boiler, and covering the same with a material (India-rubber for example) of sufficient strength to withstand ordinary pressures, but which will give way and allow of the escape of steam under excessive pressure. The India-rubber is clamped to the boiler by a flanged tube formed for the purpose.

**A NEW BRASS SOLDER.**—A new brass has been devised, having its expansion and contraction by changes of temperature the same as those of iron or steel, or so nearly so, that it may be used to solder those metals to brass. Its composition is: tin, 3 parts; copper, 39½ parts; zinc, 7½ parts.

### Hardening Rails.

Want of room at Demitoff's rail mill, at Salda Nischne, caused some years ago, a lot of red-hot rails to be removed to outside of the building where the ground was covered with snow, when it was found that the iron had been wonderfully hardened by the sudden cooling process it had undergone. A government commission, by careful examination, satisfied itself on this point, and since that time all the Russian mills have adopted the plan of suddenly cooling the rails by means of water. The rails are plunged into cold water immediately on leaving the saws, except at the works of Von Patilow, near St. Petersburg, where rails with heads of mild puddled steel are allowed to cool sufficiently to lose their luminosity before receiving the cold bath. Rails so treated are found to be perfectly reliable in the severe winters of Russia, so that there can be no question of their service in other and less rigorous climates. "The degree of fracture in good hardened rails depends," says a cotemporary, "obviously on the degree of hardness, and this depends not only on the amount of carbon present in steely irons, but on the temperature at which the hardening is effected; and there can scarcely be any tenable ground why rails should not be hardened while any other articles are, in which fracture is equally to be feared. The hardening effected by sudden cooling is indisputably less dangerous than that imparted by phosphorus; and, in case of iron free from impurities, when we compare rails hardened on the one hand by the addition of carbon, (approaching steel in composition) and on the other by sudden cooling, the advantage of safety would undoubtedly be in favor of the latter—to say nothing of the expense of manufacture."

**A NEW PREPARATION OF INDIA RUBBER.**—An improved preparation of rubber has lately been invented at Providence, R. I., which seems to supply an important want. This preparation is for carriage washers, gaskets, belting, and other purposes, where rubber comes in contact with oil, so prepared that the oil will not affect the prepared rubber. The invention consists in combining clay with vulcanized rubber. The clay which is preferably used, contains by analysis about thirty-nine per cent. of alumina, forty-six per cent. of silica, thirteen per cent. of water, and about two per cent., or a mere trace of iron, magnesia, and lime. An appreciable quantity of these last mentioned substances would defeat the object in view, since they would lump and form a gritty surface, and their particles would not contract with sufficient closeness to exclude oil. In preparing the rubber the clay is mixed with the caoutchouc and sulphur, which mixture is then prepared and vulcanized in the ordinary manner, according to the particular use to which it is to be applied. Plumbago may be added to the mixture, or not, according to the use which the rubber is to be applied. For carriage washers the compound is vulcanized upon an arbor, and washers of the desired thickness are afterward cut off.

**EXTRAORDINARY RAILROAD IRON.**—The *Montreal Gazette* states that the Canadian Grand Trunk Railway has received from England samples of steel for rails and axles which will challenge comparison with any material ever made for these purposes. "A rail was twisted cold 13 times before fracturing, in the shape of a spiral spring; and the fracture indicated that the metal still retained its hardness, toughness, and malleability. An axle was bent cold in a testing machine, with a pressure of 2 tons at 3 ft. 6 in. bearings, into a complete knot without any fracture whatever." Other remarkable samples are reported.

**A SINGLE-RAIL TRAMWAY** has lately been put into operation in India. The cars have four ordinary wheels, placed as usual, and two others, double flanged, placed between the fore and hind wheels which take the weight of the car and load, and run upon a single-rail in the center of the road track. The ordinary wheels serve to merely balance the car. The road costs but about one-half as much as the ordinary railing, while the power required for draft is vastly less than on common roads.

**CASTING UNDER PRESSURE.**—The casting of car wheels under pressure, has for some time been in progress at the Fairhaven, (Mass.) Iron Works. It is claimed that decided advantages are obtained by this mode of casting.

## SCIENTIFIC PROGRESS.

**PSYCHIC FORCE.**—It is proposed by Mr. Cox, one of the witnesses of the experiments with the "medium" Home, conducted at the house of Mr. Crookes, in London, that a psychological society shall be established for the investigation of the newly acknowledged force—in other words that a new branch of technology should be instituted out of this class of phenomena.

So far as yet developed this force does not appear to be accorded to every one—and is not uniform in its manifestations even to those who possess it in the highest degree yet noticed—a fact which must seriously interfere with any extended utilization of the miraculous power of setting at naught the laws of Nature. Hence we can hardly look to the possible construction of a psychic engine as a substitute for steam.

Still, if no other benefit should be derived from the investigation than the overthrow of the absurd theory that the peculiar developments noticed have their origin in the antics of departed spirits, the rational world will be placed under lasting obligations for that alone.

**FURNACE TEMPERATURES.**—The difficulty of determining high temperatures, as in furnaces, is well known; while the importance of being able to do so more closely than is now possible is universally acknowledged. Mr. C. W. Siemens, a gentleman well known in connection with improvements in furnaces, proposes to make use, in this connection, of the well known fact of the increase of electrical resistance in conductors with the rise of temperature. He has devised a very simple instrument for measuring the resistances, without the aid of the magnetic needle or resistance scales; and has tested his methods with very satisfactory results. He recently presented a paper on the subject before the British Royal Society.

**A NEW ALKALOID FROM CINCHONA BARK.**—David Howard communicates to the *Journal of the Chemical Society*, London, the fact that he has discovered a new alkaloid, hitherto undescribed, in Cinchona bark. It was detected in the mother-liquor, while re-crystallizing quinine sulphate. This alkaloid appears as a yellowish oil, decomposing only when heated, and not losing its water in vacuo. It is soluble in either alcohol or ether. It is more strongly alkaline than quinine, and at the same time is less bitter than any other cinchona alkaloid. Experiments are being made to determine from what portion of the bark it proceeds.

**TESTING THE QUALITY OF METALS AND ALLOYS.**—P. Bischoff of Bonn has proposed a new method of testing the quality of ductile metals and alloys, which, with the description of the apparatus required, is described in Dinger's *Polytechnic Journal*. If different kinds of metals or alloys have been rolled in exactly the same manner, the difference of ductility between them may be readily determined by the difference in the number of times the metal can be bent to and fro; under precisely the same circumstances, chemical analysis can only ascertain the presence or absence of certain impurities, without showing the injurious effect such impurities may have upon the metal. M. Bischoff has devised machinery which acts uniformly in both rolling and bending, and claims that the relative number of bends, when made by such machinery, determines not only the tenacity and strength of the metal, but its ductility and softness as well.

**ORIGIN OF PETROLEUM.**—A prominent German scientific journal contains a labored review of the various theories of the formation of petroleum, read before the Swiss Association of Natural History, in which many objections are raised against the theory of the production of that fluid from the remains of either animals or plants. A mineral origin is suggested.

### Oxygen from the Atmosphere.

The economical preparation of oxygen gas on a large scale, for use in the arts, has long attracted the attention of chemists, and several ingenious suggestions have been made looking to a solution of the difficulty, among the most recent of which is the one by Mallet, in Paris, who has devised a plan for obtaining this gas from the atmosphere by taking advantage of the greater solubility of nitrogen in water than oxygen. If the air be passed through water, more of the nitrogen is absorbed than oxygen; and it is only necessary to repeat this operation a number of times to arrive at an atmosphere from which nearly all of the nitrogen has been eliminated. It is difficult, without the aid of wood cuts, to convey an idea of the apparatus which has been constructed for accomplishing this result, but it is chiefly composed of a series of cylinders, to each of which is attached a force pump for driving in the air and passing it from one vessel to another. The moment the pressure is removed from the water, the gas escapes just as it does from a soda fountain.

It is found by actual experiment that after forcing the air through eight cylinders not more than three per cent. of nitrogen remains, an amount which may be disregarded for all practical purposes. The chief item of cost is in the working of pumps, which cannot be much, as the pressure would not have to be very great.

From the simplicity of the method we should not be surprised if Mallet's process should soon take precedence over all others. The need of a cheap method of producing oxygen has long been felt, and it appears as though the process for obtaining it here alluded to, might meet a large number of cases.

There are many metallurgical operations in which powerful blasts of air are employed to increase the force of combustion, where experiments ought to be instituted to ascertain if that quantity of oxygen could not be increased by the intervention of a drum or some kind of receiver for water. If this could be done without interfering with the requisite supply of air, it is probable that greater heat, with a large saving of fuel would be the result.

**A SPONTANEOUS EXPLOSIVE.**—Some experiments recently conducted at the Philadelphia High School developed the fact that when a strong solution of phosphorus in bisulphide of carbon is poured upon finely powdered chlorate of potassa, resting on paper, and the mixture is exposed to air, upon the evaporation of the bisulphide of carbon, the phosphorus being left in a very finely divided state, intimately mixed with the chlorate of potassa, the mixture presently explodes spontaneously, with a loud detonation. The explosion in this instance is analogous to the case of phosphorus and chlorate of potassa when struck or rubbed together, the mixture of the two substances in the present case being, however, much more perfect than can be obtained by any mechanical means.

**GREEN OF LEAVES.**—J. J. Muller, who has been examining into the nature of the coloring matter of leaves, states that on directing a spectroscope to the under side of a leaf, on the upper side of which the sun was shining, he observed a spectrum entirely distinct from that which characterizes chlorophyll. The inference drawn is that the green of leaves is not leaf-green or chlorophyll, as heretofore supposed. No opinion is given of what it may be.

**OXIDATION OF AMMONIA.**—To exhibit the rapid oxidation of ammonia, Hoffman puts a tuft of platinized asbestos in the middle of a combustion tube, places red litmus paper before and blue paper behind it, and conducts a current of air impregnated with ammonia over the heated point. The formation of nitrates and nitrites is immediately shown by the reddening of the blue litmus paper, and in the cool part of the tube, white fumes of salts are deposited. If the operation be continued for some time it is easy to fill a flask with the ammoniacal nitrates.

**BRISMITH.**—This metal comes principally from Saxony, and sells at a very high price. It is, however, reported; that hismith has been discovered at Balhannah, in South Australia, where extensive smelting works have been erected for extracting the metal from the ore.



## CORRESPONDENCE.

### EAST CANON, OPHIR DISTRICT, U. T.

BY OUR OWN TRAVELER.

EDS. PRESS:—Leaving the City of the Saints and taking my place on one of the fine 6-horse line of stages belonging to Wines & Kimball, we ride along near a range of mountains known as the Oquirrh, passing the Lake and at 1 p. m. reach Rush valley. Shortly after leaving here the road winds up East Cañon for about two miles, to the city of Ophir, 56 miles from Salt Lake. This cañon was visited in 1864 by U. S. soldiers, who made a few locations; but failed to do much work in them, as they did not consider the base ores of any value. In June 1870 a small number of energetic miners from White Pine came to look at the country and prospect for quartz. Since that time Ophir City has sprung into existence, and now contains a population of nearly 1,000 souls, several stores, saloons, etc., a good school, and a saw mill. On the road up the cañon I noticed a quartz mill and two smelting furnaces in operation. To the South of Ophir City is Lion Mountain, the summit of which is reached either by going the road from the town, about two miles long, or by way of Walker's mill, there being a good road from there for the purpose of bringing ore to the mill.

The largest lodes on the hill are the Mt. Lion, Mt. Tiger, Sunnyside, Silver, Exchange, White Star, and Silver Chief. The first one I visited was the

#### Mount Tiger,

owned by Walker & Co. The tunnel on this ledge is 6 feet wide and 175 feet long. The foreman, Mr. Daly, informs me that the ore will assay on an average \$200 per ton in silver. There are 400 tons now on the dump, and 10 men are employed in getting out ore. Passing by the Zella shaft the next mine that attracts attention is the

#### Silver Chief,

a very old location on the hill, owned by W. T. Barbee and others. Ore has been worked from this claim that yielded by smelting process, \$226 per ton. There are now 150 tons of carbonates and chlorides on the dump. The tunnel follows the ledge in for a distance of 135 feet, and it is thought the ore will yield from \$125 to \$150 per ton. The bench in front of the openings to the mine, has been dressed down in front of the ledge a distance of 150 feet, showing chloride veins the whole way. At the end of the main tunnel is a drift to the northward 40 feet long. The

#### Silver Exchange,

owned by Phillips & Co., has 800 sacks of ore on the dump, and employ 12 men. The

#### Mount Lion

is a large ledge, located in August, 1870, and belonging to O. E. Bates. There are three shafts in this mine, the main one being 35 feet deep, and showing a fine body of ore nearly eight feet in width, which runs northeast and southwest. They have 300 tons of ore on the dump, and I was told by the foreman, Mr. Knapp, that 20 tons shipped to the reduction works yielded \$500 net. This is one of the best mines in the district. Near by is a cave which was struck by some parties while prospecting. They run in a tunnel 25 feet, and at the end opened into this cave, which is all the way from 2 to 20 feet in height and 20 wide. Small streaks of chloride ore averaging from 1½ to 6 inches in width, and fine specimens of atacamite are to be seen. It is thought that a large deposit of ore is under the cave, and that gradual decomposition has let this body of lime-rock down to its present position. The Superintendent, Mr. Evans, is now sinking a shaft to determine this question. On South Ophir or Silveropolis Hill is the

#### Occidental Mine,

located in August, 1870. The tunnel on this ledge is in 60 feet, and they have taken out 150 tons of ore, which is now lying on the dump. A sample lot worked by the Stetefeldt process at Reno, on the line of the C. P. R. R., yielded \$230 per ton. The ore is hard chloride, and is, as may be supposed, in limestone formation. There are 12 men at work on this mine.

#### The Tampico

has five men employed in sinking the shaft which is 32 feet deep, showing an aver-

age width of two feet in the body of ore. Semo horn silver has been found in this claim and the chloride runs about \$75 per ton. Mr. Jas. Crossley is supt. Leaving here we went to the

#### Silveropolis Mine,

where they have 400 tons of ore on the dump, sample lots of which have worked \$95 per ton.

#### The Chloride Point

has a tunnel on milling rock, 170 feet in length, running due north. Capt. Balch, the Supt., tells me that there are 250 tons of ore on the dump ready to be worked. At Silver Hill, on the north side of the cañon, is the

#### Velocipede, No. 1,

near the city, and located in Nov. 1870. The tunnel on this ledge is in 100 feet, and the drifts, on both sides, all in a body of ore. This is principally carbonate of lead, and is said to work easily, yielding from \$45 to \$50 per ton in silver. It is thought by the managers of the smelting works in the Cañon below. The rock being soft and decomposed is easily mined, and Mr. Manchester, the Supt., tells me that there are upwards of 1,000 tons on the dumps.

#### Velocipede, No. 2,

has considerable ore on the dumps, and has a tunnel 75 feet in length, giving evidence of a large deposit. The shaft is only 12 feet deep.

#### Silver Shield.

The main tunnel of this mine is 65 feet in length, at the end of which is a shaft 36 feet deep, passing through a fine looking body of ore. The wide drifts east and west are respectively 75 and 50 feet in length. The body of ore dips to the west, and averages, it is said, \$33 per ton in silver by smelting. There 8 men employed and they have 1,200 sacks of ore on the dump. This mine is quite extensive and belongs to Judge McKean, R. M. Robinson, Col. Kane and others. T. J. Smith is Superintendent.

#### The Chrysopolis Tunnel

has been run in 42 feet, a short distance up the hill, and the company have good indications of ore. Messrs. Riley & Rafferty are the owners.

The Velocipede No. 1, Velocipede No. 2, and Silver Shield mines, have been connected by side drifts, all three of these locations being close together. The deposit of ore on this hill is considered to be fully as large as that of the "Emma," but it is not so rich in silver. Work is being carried on energetically in all these mines. I understand that there are many good locations scattered about higher up the hill, but for want of time I did not visit them. There are a great number of prospectors at work in this vicinity, and we hear of new strikes quite frequently. The enterprise of tunneling the mountain, from the north side of Lion Hill to the south side of Horn Silver Hill, is exciting attention just now. A company has been formed with an incorporated capital of \$2,000,000, for this purpose. The locators in this enterprise are Messrs. T. G. McLaren, T. F. Tracy, J. C. Mathews and others. McLaren's East Cañon tunnel has been surveyed, and along the line the prominent altitudes above tide are as follows: East Cañon Gulch, just above Ophir, 6,670 feet; "Silver Chief" mine, 8,500; "Mt. Tiger" and "Zella" mines, 8,650; summit of Lion Hill, 9,100; "Mt. Lion" mine, 8,620; Mountain View House, Monarch and Virginia mines, 8,776; summit of Horn Silver Hill, 9,215; Vallejo and Occidental mines, 8,850.

Another tunnel company is talked of through Chloride Hill. It will tap the base of a number of mines, among them the "San Joaquin," "Chloride Gem," "Chloride Queen" and "Anna." These tunnel projects will be of great utility to the entire district.

A careful estimate places the amount of ore now lying on the dump of mines on Lion Hill alone, at 6,000 tons, awaiting the completion of the mills. A large number of excellent mines are now idle waiting for the erection of reduction works.

The mines on Lion Hill are very extensive and are more fully developed than at any other place in the district. The mines containing the base ore, or argentiferous lead in its various forms, are principally on the North side of East Cañon for a distance of three miles. There have been found also chloride ores of a high grade, in many places, in this base metal range, from the summit to the foothills. Among the ledges which bear chloride ores and are at the same time in the vicinity of those carrying base metal, are the Baltic, Lowland Chief, Naboh, Olive Branch, Eastern Star, Great Western, Chrysopolis,

Albion, San Joaquin, Alabama, Kearsarge, and Chloride Gem.

These ores although called free, will probably require roasting to perfect amalgamation in milling, since they all contain a small percentage of base matter, in the forms of antimony, lead, sulphur, arsenic, and copper. The smelting ores are principally in the form of galena, carrying on an average about \$60 per ton in silver. The carbonates yield \$40 per ton in silver on an average and 45 per cent. lead. The latter class of ore will have to be concentrated and freed from earthy matter before shipment for smelting. The grade of ores of this nature taken out thus far is too low to ship with profit, at present rates of freight, to the East or West, and the method of working ore which will approximate the fire assay the nearest is what is desired in this, as in every other district containing base metal ores. With an abundance of such ores as are now being taken out, the necessary fluxes (which are abundant) and a sufficient knowledge of metallurgy to treat them right at the furnace, the smelting business intelligently and economically managed must be very profitable in Ophir district.

So far as experiments have gone they have shown that the ores of Lion and Silver Hills will have to be roasted before amalgamating, for the reasons before mentioned. Good mills with furnaces attached can afford to pay a good figure for ores, as their process is much more perfect than the furnaces alone are, the latter being a comparatively new thing in the separation of silver ores in the interior, and the reputation of the process has suffered from the inexperience of those conducting it. It is improving, however, and bids fair at no distant day to compete favorably with any other process.

### THE SAN DIEGO MINES.

#### Julian District.

EDS. PRESS:—In your issue of Aug. 19, a correspondent signing himself "T. T." criticizes my communication of July 20, concerning the yield of ore from the California mine. I thank you for your explanatory note, under his letter, in which you give an intelligent interpretation of the idea that I intended to convey. The rock from the California mine that I spoke of in my letter, (published in your issue of the 5th,) was extra ore and might be called a specimen; although they did have some that was pounded in a hand-mortar and yielded as high as \$5 per pound. Mr. D. H. Snyder & Co. have succeeded in straightening the California shaft, and, having timbered it in a substantial manner, are now sinking. There is no doubt but that they have a very fine mine. In my last letter I told you I would tell you something more in my next with regard to A. P. Frary's mine, the "Stonewall," it was then 12 feet wide. The ledge has enlarged until it is now about 15 feet wide between the walls. All the rock will pay, and is extracted without the aid of powder. Heretofore there has only been sufficient water obtained from the mine to run the mill about three hours; but since they have commenced sinking the shaft, water has increased daily, and now they can run the mill 10 hours per day and will soon have sufficient quantity to run all the time. When the mill runs, (five stamps,) it pays or cleans up \$20 per hour. In short, the Captain has one of the finest mines in California.

Our country is not prospected yet, and prospectors are still making strikes. Mr. W. G. Woodward, who found and located the California mine, having last week sold his entire interest in that mine (to D. H. Snyder & Co. whereby they became sole owners of the mine,) started out prospecting, and was soon rewarded by finding a ledge within a few hundred yards of the Owen's mine, and running parallel with it, which he informed me was nearly two feet wide and the best prospect he ever found in the country. From a specimen he showed me, showing free gold, I should pronounce it very rich. Mr. L. L. Wilcox, also found a ledge last week, a large specimen of which showing plenty of free gold, he left in my office. He says the ledge is about one foot wide. There are many old locations here that prospect gold that are lying idle; but we hope these mines will all soon be worked, as the mills are doing

better than formerly, proving that mines that have not been remunerative heretofore, can now be worked with a profit. Messrs. Gunn and Reynolds' mill has been running steadily, and shows great improvement in returns on ore. Parsons & Moore made a sale last week of their mill to Col. Wm. R. DeFrees & Co. who will soon start up with a new engine and proceed to add new machinery for working ore and saving gold. Col. DeFrees being an old "Idaho mill-man" will no doubt make the mill a success. The mines in San Felipe are all looking well, particularly the Kentuck, Madden, Antelope, Redman, Bailoy, and Golden Chariot,—ore from the latter mine is now being delivered at McMechan's mill, which is estimated at \$200 per ton. We only need more capital to prove how numerous and rich our mines are. Last week one-half the Madden mine was sold for a pittance, and this week a specimen was shown me from the bottom of the shaft 40 feet deep, with free gold all over it. In the sinking of the shaft some very rich rock has been found, a specimen of which I sent to the Mechanic's Fair, which was noticed by you in your issue of 19th.

L. B. H.

Julian City, Ang. 28th, 1871.

### Agriculture in the Mountains.

We learn from our exchanges that the crops throughout the mountains of our own and the adjoining states of Nevada and Oregon and the surrounding Territories, as well, are all that could be expected, even under the most favorable circumstances. Experience is fast demonstrating the fact that our mining regions may place themselves almost independent of the great valleys of this State for their agricultural supplies. Still, but very few of the fertile valleys in Idaho, Montana, Colorado and Utah, are under cultivation. Enough, however, has been done to show most unexpected and satisfactory possibilities in the more extensive and careful cultivation which will yet be reached. The streams running through these valleys, as a general thing, are large, never failing, and furnish an abundance of water for irrigation; and while the low lands will be generally devoted to fruit and root crops, that farther back and among the foot-hills is well adapted to grain of all descriptions, and still farther among the hills is found good grazing ranges for stock.

Such lands are becoming each year more and more valuable, as their capacities for cultivation are more generally made known. Fine root crops are being raised on such lands in Colorado even at an elevation of eight and ten thousand feet above the sea level. These facts have an especial interest to our mining population, which will thereby soon be enabled to secure the most of their supplies near home, and consequently at a greatly reduced cost, by means of the saving of transportation. But a small proportion of such lands, susceptible of improvement, have as yet been taken up, and thousands of acres in every mountain county this side of, and including Colorado, are yet open for location.

Practical experience has taught us that sage brush land, hitherto considered absolutely worthless to the farmer, is the very best kind of land for cereals, wherever it can be irrigated. Bright prospects are before all our mining counties, if they will only utilize, with diversified industries, all the advantages which they possess.

### A Handsome Acknowledgment.

MESSRS. DEWEY & Co.: We hereby acknowledge the receipt of the patent papers for our improvement in wheels for traction engines, and also the notice that the improvement on tubular boilers had been allowed; and in this connection we think we should exchange congratulations for the uniform success that has attended your applications for us, this being the twelfth patent we have obtained through your agency, within ten months, for our American Overland Steamer—a success due to the careful and full preparation of the cases before they leave your office, and a thoroughly live man to attend to them when they arrive in Washington; and perhaps we might modestly add, the intrinsic merits and originality of the ideas themselves. Such promptness and success in obtaining patents we think unparalleled.

Respectfully yours, O. HYDE & SON.  
Oakland, August 1, 1871.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

TARSHISH.—Monitor *Miner*, Sept. 2d: The Silver Glimpse, Monitor No. 3, and Schenectady, continue to encounter pay ore at widely different points, proving the lode a very extensive one.

Six more carpenters, making thirteen in all, are to be put at work on the new quartz mill, Main St. It is said that the mill will be running by the first of December.

### CALAVERAS COUNTY.

FOUND IT.—Mok. Hill *Chronicle*, Sept. 9th: Champion & Co., Corral Flat miners, have struck a rich streak. A piece of gravel large as a man's fist, taken from the lead yielded \$10.

MINING ACCIDENT.—On Wednesday C. O'Neil, in the Whiskey Slide Mine, received quite severe injuries by being caved upon. His left leg was dislocated at the knee by the mass of falling quartz, and he also sustained severe bruises.

### LOS ANGELES COUNTY.

BULLION.—Los Angeles *News*, Sept. 6th: 500 bars of bullion from the Union works, Cerro Gordo, were received at the depot yesterday; and 500 from same place on the 8th; aggregate weight 42,308 lbs.

### MARIPOSA COUNTY.

MILL DESTROYED.—Mariposa *Gazette*, Sept. 8th: Fileciana quartz mill was totally destroyed by fire on Wednesday of last week. The mill was a ten-stamper. It is the intention of the Co., to erect a new one immediately.

### MONTEREY COUNTY.

NEW QUICKSILVER MINE.—Monterey, Sept. 8th: We report the discovery of a quicksilver mine, which promises to take rank with that of New Idria in richness. It is called the Cerro Bonito mine, lying in the mountains west of Panoche Valley, about 50 miles from San Juan. A 5-ft. ledge has been laid open, and about 200 tons of metal taken out, averaging 10 per cent. of quicksilver. Specimens of the ore, yield 45 per cent.

### NEVADA COUNTY.

IDAHO MINE.—G. V. *Union*, Sept. 8th: Has been running with regular and large results for several months. The dividend for August last was \$10 per share, or \$31,000 as the whole.

NEW YORK HILL MINE.—Fine looking rock is now being taken out of this mine. The ledge is a good one and the rock is heavily charged with mineral. Work is being actively prosecuted.

ACCIDENT AT THE EUREKA MINE.—On Monday, W. Harris was working on a scaffold, when he slipped and fell a distance of 8 ft. An axe on the scaffold fell at the same time and struck Harris on the back of the head, making a fearful gash.

### EL DORADO COUNTY.

GREAT CREVICE MINE.—Sac. *Reporter*, Sept. 8th: The men are making a tube of iron which measures 5 ft. clear on the inside, and expect to have it down 90 ft. in about 16 days, when they will probably strike pay dirt.

FIRE—MILL BURNED.—Same, Sept. 12th: Sunday about 2 o'clock A. M. the Dartmouth Co.'s mill was destroyed by fire. It is supposed it to be the work of an incendiary. The property was worth about \$5,000 and we know of no insurance upon it. The mill was a new one and had never been used.

MINING ITEMS.—Yesterday the Enterprise M. Co. Buena Vista Hill struck into gravel, 7 feet thick. It is closely cemented and is rich in gold.

The Coe mine is looking very well. The ledge in the bottom of the shaft is about 6 feet thick and shows free gold. It is nearly vertical.

The Empire mine is doing well, sending to the surface very rich rock.

The North Star is in a dividend paying way.

The Kentucky ledge east of the town on Wolf creek, has been recently sold to parties in S. F. for \$25,000.

The Webster gravel mine on Randolph Hill, is paying over expenses, and the quality of the gravel is increasing every day.

The Altona on Alta Hill has good prospects in gravel.

### PLUMAS COUNTY.

ARGENTINE.—Quincy *National*, Sept. 9th: The Conklin mill has commenced crushing again, Mr. C. having recently put in a new battery. He will operate by wet crushing, instead of dry as formerly. The

rock prospects well. Lowe & Hobart's mill is running steadily, and paying first rate. Heath & Freeman's placer claim is paying at the rate of \$20 a day to the hand.

## Nevada.

### COPE DISTRICT.

ORE SHIPMENT.—Elko *Independent*, Sept. 9th: A. J. Roulstone, during the week, shipped 30 tons of ore from Railroad Dist. to S. F.

BULLION.—Ten bars of hullion were brought from Mt. City during the week, valued at \$9,000.

PROSPECTING PARTY.—On Wednesday evening, 12 men left for Eastern Wyoming, in search of placer diggings.

### EUREKA DISTRICT.

BULLION.—Eureka *Sentinel*, Sept. 3d: The Consolidated Co. is making about 22 tons of hullion per day. The Phenix Co. 10 tons. The Richmond Co. 10 tons, and the Roslin furnace 10 tons.

GENERAL LEE MINE.—Yesterday another rich discovery was made in the "Mary Belle" location. This demonstrates the fact of the unbroken extent of the General Lee vein across the ravine and some 150 ft. further southwest.

GOOD STRIKE.—The miners in the Excelsior, New York cañon, yesterday struck a fine body of ore, averaging a higher grade than any before found in the mine.

DISCOVERY.—On the road to Austin, and about 10 miles from Eureka, is a place named the Devil's Gate. A large and well defined ledge has been discovered there, extending for a long distance.

SOLD.—The Wide West mine was sold yesterday for \$25,000; \$80,000 was refused by the owners of the General Lee for that mine.

NEW FURNACE.—The Richmond M. Co. have commenced excavating for the site of two furnaces to be built immediately.

PINTO MILL.—The grading for the foundation has been completed.

NEW YORK CANYON.—The Gaslight shows a fine body of first-class ore 3 ft. thick. This mine is for sale. In Excelsior the prospectors have opened a large body of ore. The X. Y. Z. is being developed rapidly, and shows a fine vein. The Fourth of July is improving. The Home Ticket, is being profitably developed, and has ore in abundance. In the Lord Nelson, ore of good quality was struck in a regular vein on Saturday. The Diamond has a good vein just opened. In the Elise, ore was struck in the main tunnel at 100 ft. from the surface.

### ELY DISTRICT.

MONTHLY SHIPMENTS.—Pioche *Record*, Sept. 3d: For August there was shipped from W. F. & Co.'s office, in this city, bullion valued at \$335,174.74. Since Thursday they shipped 22 bars valued at \$57,595.65 and (same paper Sept. 7th:) since Sunday, 22 bars valued at \$43,920.68.

MEADOW VALLEY.—This mine is shipping about 60 tons per day to the mill. The amount will be increased soon. A new engine for the mill is on the way from Toano.

KHEDIVE.—This is the name of a new location on Spring Mt. An assay from the croppings gave \$43.47. The ledge is 4 ft. thick on the surface, is a solid vein, and shows as well on the top as any in the District. At a depth of 5 ft. a body of chloride 18 inches in width was struck.

PIOCHE MINE.—The usual amount of ore is being shipped to the Chicago mill, Meadow Valley. The lower level and stopes yield an abundance of fine ore. Connection has been made between the east and west winzes by a large drift, a fine body of first class ore has been opened up, and a large quantity is now in sight. The shipment for August will average \$40,000.

STETTFELDT FURNACE.—The machinery for the Stettfeldt furnace in Meadow Valley has arrived, is being placed in position, and will start up in about two weeks.

HEAVY WORK.—J. Cahill assayed for the Raymond & Ely M. Co., during August, 46 bars valued at \$135,525.42.

AMERICAN FLAG.—Work has been suspended, as it is bonded to a Chicago Co. The mine is thoroughly developed, and has an immense quantity of ore on the dumps, which will average about \$300 per ton.

PROMISING MINES.—The mines owned by P. McCannon & Co. are showing good indications. The ore from the Washington is worked at the 5-stamp mill in Bullionville, and enough is on the dump to keep it running for 2 months. The Silver Peak mine is down 100 ft. and taking out good paying ore, with about 80 tons on the dump. A tunnel is being run to make connection with the shaft. It is in 97 ft. The Giant mine is looking well. Shaft down 32 ft. and a ledge about 24 ft. in width in sight, with indications of striking a large body of ore.

MILLS.—Day Valley mill has 30 stamps, 13 pans and a rock breaker. It is also supplied with 2 sets of boilers—1 of 2 and 1 of 3. The engine is about 130 horse power. Raymond & Ely has 20 stamps, 10 pans, 4 large and 6 small ones, 5 settlers, 3 retorts, and a rock breaker. During August, 46,081 lbs. of amalgam were produced; and on Sept. 1st (clean up day) was produced 2,604 lbs.; and on Sept. 3d, 1,055 lbs. Chicago mill has 10 stamps and is running on ore from the Pioche mine. 5 more stamps will soon be added to the battery when it will crush dry. The hullion at present turned out averages from .800 to .900 fine. Raymond custom mill has 5 stamps running on ore from the Washington mine. The hullion turned out averages .820 fine and in amalgamation the loss of quicksilver is but 2½ lbs. to every ton used.

### HUMBOLDT.

BULLION SHIPMENT.—Unionville *Silver State*, Sept. 9th, W. F. & Co., shipped from Arizona mine since our last issue hullion valued at \$6,767.

DUN GLEN.—Sprague & Co.'s new mill is rapidly nearing completion. The Co., have on the dump at one of their mines 200 tons of good milling ore. It is stated that the Bowen mine, and one or two ledges adjacent, have been sold for \$28,500.

TO BE REBUILT.—The Butte Mill, at Rye Patch, recently destroyed by fire will be rebuilt.

THE ALPHA MINE is producing ore that yields \$100 per ton.

BUTTE M. Co. have shut down their mill for repairs. The Co. propose to erect an Aiken Furnace.

### REESE RIVER.

BULLION SHIPMENT.—Austin *Reveille*, Sept. 5th: During August, W. F. & Co., shipped 77 bars of hullion valued at \$57,733.08.

THE PACIFIC M. Co., shipped yesterday to London, 15 bars hullion valued at \$9,753.19.

BELMONT BULLION.—During August, Paxton & Co., shipped from the California Mill Belmont, 62 bars, valued at \$34,660.98, and 7 bars, valued at \$9,951.63 from the citizens mill for the same period.

ARRIVED AT WINNEMUCA.—W. F. & Co. received this week from Silver City, Idaho ten bars hullion for shipment valued at \$21,000.

AMALGAM.—4,200 lbs. of amalgam were reported yesterday at the Manhattan mill. During the month of August this Co., shipped 85 bars of bullion, 6,419 lbs worth \$77,026.49, besides which they have on hand, of last month's working, bullion, crude, and in bars, to the value of about \$24,000.

METACOM.—This mill is being thoroughly repaired, and will be ready to commence in a month. A White's revolving furnace will be substituted for the old one.

The Pacific Co., will run the mill upon ore from Lane & Fuller's shaft. They do not intend to do any custom work.

MONITOR MINE, BELMONT.—There has been since the 1st of March about 200 tons of ore taken from the mine, of a high grade. The tunnel taps the ledge at a depth of 275 feet, at which varies in width from 2 to 16 ft.

### WASHOE.

BULLION SHIPPED.—Gold Hill *News*, Sept. 8: The Bank of California yesterday shipped \$61,000 in silver bars, principally from the Belcher, Crown Point and Yellow Jacket mines; on Sept. 6th, \$18,000, principally from Crown Point; and on the 5th \$66,500 from Crown Point, Yellow Jacket, and Chollar-Potosi.

ORE YIELD.—Last week the Chollar-Potosi yielded 620 tons of ore, assaying \$46.50 per ton on the average. Last month 680 tons of ore from the new body in the Belcher mine yielded \$55,134, being nearly at the rate of \$77 per ton. Crown Point is yielding about 200 tons per day. The 900-foot level is improving in appearance. The Hale & Norcross yielded 295 tons of ore last week, and the Savage 591 tons.

The indications in the Daney mine are better than usual.

AUGUST RECEIPTS for the Caledonia mine footed up \$17,212.

LADY BRYAN.—A large amount of excellent ore is being got out of this mine and collected on the dumps.

THE NEW SHAFT of the Overman M. Co., situated 1,500 ft. east of their old original shaft, had reached a depth of 65½ ft. on Saturday.

SUTRO TUNNEL was in yesterday a distance of 2,404 ft.

SAVAGE MINE.—Three mills are running on ore from the Savage, and still ore is accumulating at the mills and dump of the mine. At some of the mills over 1,000 tons

of ore are piled up, and there is a great quantity at the dump.

THE BELCHER MINE.—The body of ore on the 1,100-ft. level of the Belcher mine is proving of great richness and extent. It has been opened upon for a distance of 196 ft. north and south, and as it is followed to the southward it improves in quality. Assays of ore taken from the face of the drift (extreme south end,) run from \$100 to \$200 and upwards per ton. In Crown Point the deposit has been opened upon a distance of 240 ft. in length and some 70 ft. in width. Adding to this the distance to which it has been opened upon in the Belcher, it gives 346 ft. as the known length of the body ore.

NEW BLOWER.—The Yellow Jacket Co. have put in a new patent Root blower at their south hoisting works.

THE BIGGEST PAN YET.—Taylor & Co. are now engaged in the construction of a pan for working tailings, of the Parke pattern, which will be 12 ft. in diameter and 8 ft. high.

HOT WATER IN THE OPHIR.—Virginia *Enterprise*, Sept. 11: The Ophir shaft has now attained a depth of over 1,000 feet. The water now finding its way into the shaft is quite hot.

ACCIDENT.—Yesterday as a cage loaded with miners was being lowered in the Ophir mine, a stone fell from above striking one of the miners on the left shoulder. Upon examination the bones of the shoulder were found to be broken. The requisite surgical assistance was rendered. The injured man was a Russian named Louis.

ANOTHER ACCIDENT.—Last evening, at the south Yellow Jacket works, by some mistake a car load of miners, in being hoisted from the shaft, were run up to the shackle or pulley at the top of the hoisting frame. One of them, by the name of Burke, in jumping off the cage, strained both ankles quite severely.

SHELL CREEK MINES.—Cor. same Sept. 2d: The mines are scattered over a range of country 14 miles square. Of the North Hill mines the principal one is named the Woodburn. The formation is limestone, of the same character as that which prevails in White Pine and Eureka. But below the limestone runs a strata of quartzite something similar to Pioche, and again below that is a heavy formation of porphyry which bursts out in croppings. The croppings have been stripped off exposing to view a vein of very high-grade ore about 3 ft. thick. The character of the ore is chloride and sulphuret, and the matrix a true loose-grained quartz. The other prominent locations on the hill are the Jupiter, an immense outcrop of silver-bearing quartz; the McMahon, which displays a fine body of ore, average lots of which, worked at the Big Smoky mill, Hamilton, yielded from \$300 to \$400 per ton; and the Summit, which is said to be a good mine.

QUEEN SPRINGS.—Situated about 4 miles from Schellhorn, is easily accessible. I was a pioneer of Washoe and White Pine, and have lived in nearly every district in the State, but I think that next to the Comstock, Queen Springs is the biggest thing ever struck in the State. It is said that South Camp, 12 miles from here, surpasses even Queen Springs. At Queen Springs, there is a well defined ledge running north and south, which is traced for over half a mile. I commenced at El Capitan, on the north end, and followed along the ledge to the Nutmeg, and in no place for this distance (half a mile) can a piece of rock be knocked off the croppings which does not display mineral. The ledge is well defined between walls, the pitch being west, and a well defined clay seam occurring between the ledge and the hanging walls. The Nutmeg, as before stated, is the only location on which much work has been done. From this the surface has been stripped for a length of about 25 ft. by a width of 15 ft. and the entire exposed surface is ore, ranging in value from \$300 to \$1,000 per ton. There are about 200 locations recorded on the hill, but there is still a big chance for prospecting. The facilities for getting out and hauling the ore are first class, and water and wood are abundant. In the cañon is room and water for an unlimited number of stamps. Cor. *Enterprise*.

### WHITE PINE.

BULLION SHIPMENTS.—W. P. *News*, Sept. 7th: Shipments for the week foot up \$27,697.43.

SILVER WAVE.—A vast improvement has taken place in the quantity and quality of the ore during the past week. It is almost safe to say that before three months the fact will be demonstrated that a continuous ore channel runs through the Hill, commencing below the Elberhardt—taking in that mine, the South Aurora, Iceberg, Eclair, North Aurora, Ward Beecher, Con-







# PATENTS & INVENTIONS.

## Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

### FOR THE WEEK ENDING AUGUST 29.

BEDSTEAD FASTENING.—Elisha T. Barlow, San Francisco, Cal.  
AEROSTATIC JACK.—Anthony V. Ojeda, San Francisco, Cal.  
DENTAL PLATE.—Smiley Purvine and Harrison Smith, Salem, Oregon.  
APPARATUS FOR UNLOADING HAY, ETC.—Edmund Harrison, Mountain View, Cal.  
HARVESTER.—James Hazel Adamson, Auburn, South Australia.  
HAY PRESS.—Oscar Bosseé, Millbrae, Cal.  
PAVEMENT FOR STREETS, ETC.—William H. De Valin, Sacramento, Cal.  
CAN-OPENER.—Edward M. Dewey, San Francisco, Cal.  
TUBULAR STEAM BOILER.—Oliver Hyde, Oakland, Cal.  
BADGE.—Nathan Joseph, San Francisco, Cal.  
BADGE.—Nathan Joseph, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

### Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

FEED CUTTER AND GRINDING MILL.—Carlos R. Donner, Sonora, Cal. This invention relates to certain improvements in feed cutters and grinding mills combined, and it consists first, in an improved arrangement of mechanism for feeding forward the straw or hay to the knife; and secondly, in the employment of a grinding mill for grain feed, which shall be actuated by the same mechanism which drives the cutter. The feed box is of the ordinary shape and is constructed with a pair of wheels which can be raised or lowered by the movement of one pair of legs so that when the wheels rest upon the ground, these legs serve as handles by which to move the machine from place to place. The cutting knife is curved, and secured with its guard to one of the arms of the fly-wheel, which revolves at right angles across the front of the box. A cylinder is secured to the shaft of the wheel and this has a cam groove made in it, so as to actuate an arm which extends down to it from a shaft across the top of the feed-box. The grinding mill is secured to one side of the feed-box, and has suitable grinding apparatus within which is actuated by connections from the fly-wheel.

MACHINE FOR TURNING SPIRAL MOULDINGS.—Ed. A. Stockton, S. F. The object of this invention is the construction of a machine in which spiral mouldings can be readily turned by simply putting a square stick of the proper size, through the machine, and it consists first in the employment of a novel device for turning the stick, to form the spiral, as it passes through; and secondly, in passing the stick after it has been rounded, through a peculiar feeding nut or barrel into which a V-shaped outter extends and forms a groove, and this groove in combination with a screw thread, feeds the stick forward. It also consists in the use of a lateral bit, or chisel which revolves so as to always cut the wood with the grain, and thus avoid giving a rough surface.

BLIND SLAT RIVING MACHINE.—Paul Schumacher, S. F. Cal. This invention relates to certain improvements in machines for riving or splitting out the slats used for window blinds or shades, and it consists of a suitable box in the bottom of which are fixed a number of cutting knives. A sliding frame is arranged to be moved forward and back inside this box, and it carries the block from which the blind slats are to be cut. This block is pressed down by rollers which are fed downward automatically after each cut.

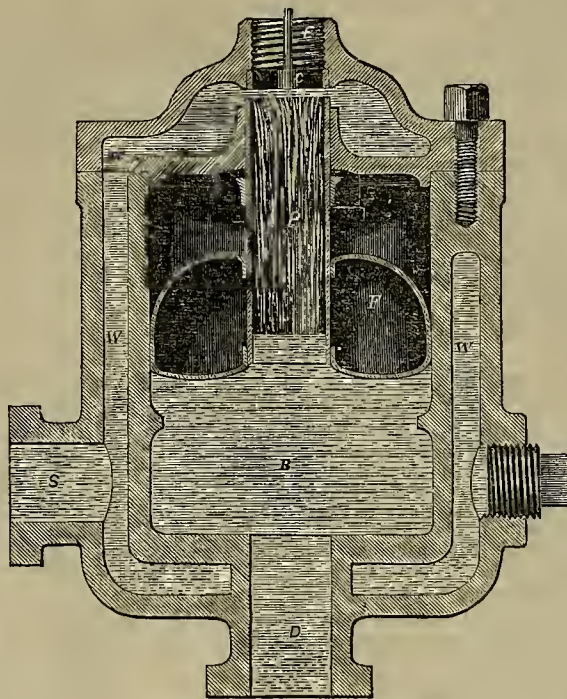
ROASTING FURNACE FOR ORES.—Knox & Osborne, S. F., Cal. This furnace is an

improvement upon one for which a patent was obtained by the same parties June 14th, 1870, in which a series of pigeon holes admitted the heat to the ore, and another series upon the opposite side carried it off

## CRAIG & BREVOORT'S PATENT CONDENSER FOR STEAM PUMPS.

The following description, which we copy from the *Iron World*, will be found of

Fig. 1.

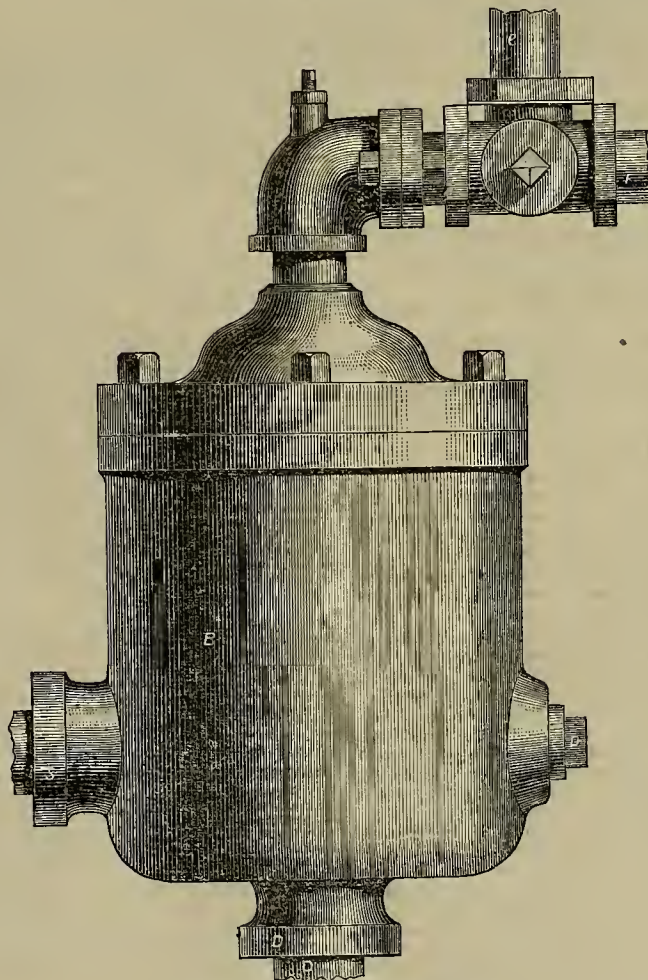


SECTIONAL VIEW OF CONDENSER.

after the work was done. In the present case the furnace is constructed with a series of vertical arches, each lower arch receding from the one above, so that their angle will be greater than that slope at

interest to all users of steam pumps, especially those in mines and other places where exhaust steam is a trouble. The power of the pump is increased materially.

Fig. II.



OUTSIDE VIEW OF CONDENSER.

which the ore will stand, and the clogging of the openings or pigeon holes is thus avoided. It also consists in the use of a feeding device or box which can be filled with the brush usually used for fuel, and then when the door is opened it can be swung in and discharged, and the door instantly closed to prevent the escape of heat.

The annexed engravings represent a condenser to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines, the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on

its entry into which it meets the water drawn by the pump, and is immediately condensed. Fig. 1 represents a vertical section of the condenser, and Fig. 2 an elevation.

The flange, *D*, is screwed to the suction orifice of the pump, and the flange, *S*, to the pipe leading to the well or whatever source of supply the pump may have; *W* is a water jacket surrounding the main chamber of the condenser, *B*, and with which the suction pipe, *S*, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through which the series of openings, one of which is shown at *a*, and from thence into the body of the condenser, *B*, through pipe, *P*, carried by float, *F*; the pipe, *P*, also acts automatically as a valve to enlarge or contract the space through which the water enters, by which means the possibility of the condenser being at any time flooded is avoided. The pipe, *P*, it will be observed, also acts as a guide to the float, *F*.

The valve, *C*, (shown in Fig. 1), which is raised or lowered by means of a screwed stem—shown coming through the elbow in Fig. 2—is for the purpose of increasing or decreasing the flow of water, according to the capacity of the pump to which it is attached.

The exhaust pipe from the steam cylinder is screwed into the cover at *E*; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to the water cylinder of the pump through *D*. The vacuum which is of course immediately formed, acts on the exhaust side of the steam piston, aiding in its work in proportion to the amount of vacuum obtained.

When we consider that steam pumps are usually constructed with steam cylinders, from three to four times larger in area than the water cylinders, and that we have a vacuum equal to about 13 pounds pressure, which vacuum has the large piston of the steam cylinder to act upon, we see that the pump is exactly in the position of any condensing engine. Suppose we take a pump of the following dimensions: 6 inches diameter of steam cylinder, 3 inches diameter of water cylinder, pumping against, say, 80 pounds. The steam piston will have a pressure of, say, 25 pounds above the atmosphere on it. Five pounds of this is used up in overcoming the friction of the pump, and the other 20 pounds is left to perform the work. The condition of the pump, if a condenser were attached, would be as follows: 13 pounds of the steam pressure would have its place taken by the vacuum; consequently 12 pounds of steam would be sufficient for the working of the pump. This is a direct saving of 52 per cent. when pumping at 80 pounds pressure in the water cylinder. When the pressure against which the pump is working is less, the percentage of gain will be greater. The economy is plainly shown by figures; also by indicator cards taken from the pump, from which cards the above calculations were made.

It is, however, not only in obtaining a vacuum that the advantage of this condenser in its application to steam pumps consists. When the pump is used for feeding a steam boiler, or for any purpose requiring hot or warm water, all the heat of the exhaust steam, except that which is unavoidably lost by radiation, is utilized, and consequently the economy effected thereby is very great.

The extreme simplicity in the construction of this condenser is such that it can be managed and taken care of even by those who are not thoroughly conversant with all the details of the condensing steam engine.

If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser and acts as if it were not attached.

This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam.

For further information apply to Henry L. Brevoort, No. 128 Broadway, Room 13, New York.

Out of three hundred and seven millions of people carried on English railroads in 1869, only seventeen were killed by causes beyond their own control, while in the streets of London one hundred and forty persons were killed, and it is estimated that the orange-peel thrown on London pavements kills more than all the English railroads.



## CANAL PROPULSION.

Since the one hundred thousand dollar reward was offered by the State of New York for the best device or means for propelling canal boats, the ingenious *geniuses* of the country have been laboring with an eye to the acquirement of this handsome prize. Many of the plans suggested have merit, but the trouble seems to be that the requirements of the law under which the prize is to be awarded, are such, that but few can enter their plans for competition. For instance, it is required that at least three trips must be made between Buffalo or Oswego and New York with each device presented for competition, at the expense of the person presenting it. Now this alone, if no other obstacle were presented, will deprive hundreds of inventors from presenting their improvements, as in most instances the outlay required will be more than they can afford.

The consequence then will be that the contest will be confined to the few who have means enough to encounter the necessary expense, or who can induce some capitalist to invest the money for a chance in the prize. After all it may be that the very object aimed at by the law, will be defeated by its own conditions.

It is well enough to offer a reward for inventions of value to the public; but the mechanic of small means should be given a show, as it is from them, as a general rule, that the best and most practical inventions emanate.

Such laws are usually framed and lobbied through the Legislature for a purpose; and if this law had been passed in California instead of New York, we should conclude at once that the whole thing was a "put up job" to put the public money in the pocket of a certain person, for whose benefit it was purposely made; in other words, that it was the work of a "ring." But as they do not do such things in New York (?), we refrain from making the remark.

Nothing would please us more than to learn that some inventor upon this coast had obtained this prize. We should then "got even" with New York for the \$100,000 which was swooped out of this State by the holder of the lucky ticket in the "Mercantile Library Lottery."

The one device which seems to meet with most favor, and the one which many already acknowledge bids fair to win this large prize, is the one designed and operated by Mr. Thomas Main, mechanical engineer, of New York. This device consists first, in remodelling the construction of the canal boats now in use by leaving a channel extending the entire length of the boat, underneath its bottom, so that it will have two keels—one at each side; and secondly, by placing the propeller in the forward end of the boat, so as to work in the channel thus formed. By this arrangement the agitated water is compelled to pass under the entire length of the boat, during which time it is "smoothed out," as it were, thus preventing any side wash upon the banks of the canal. Other improvements have also been added in the way of machinery, and altogether this may be considered the winning boat,—a fact, we doubt not, well known to the inventor long before the law offering the prize was passed. The *Scientific American* speaking of this vessel says:

A boat constructed on this principle has been for some time regularly employed upon the Erie Canal in N. Y., carrying, besides the machinery, 200 tons of cargo, at a rate of three miles per hour, including lockages, or seventy-two miles in twenty-four hours, consuming only a ton of coal, \$5, against \$28.50 for two horses' towage for the same distance—a saving of half the wages of the crew, and transporting the goods in the same proportion of time—and, additional to its own cargo, it can tow a similar barge at very nearly the same speed. This boat can go through a lock in

six minutes, against twelve minutes required for a horse boat, and is then handled by one man with ease. There is no injurious action on the banks, and the boat can leave the canal and proceed as quickly and safely on river navigation with her self-contained power. In twelve months, such a boat, 70 feet long by 16 feet wide, and 9 feet depth of hold, with an 8 inch cylinder, driving a 4½ feet propeller, can pay for her entire cost from the saving over horse boats, to say nothing of the certainty and dispatch which alone insures the confidence of the mercantile community, and is the foundation of extensive patronage.

With this record it is hardly possible for any device now known to step in ahead and take the prize, even if the law was not made with special reference to it.

There is one question, however, that naturally suggests itself in this connection: If the idea of the law makers was to reward the inventor of this device, why offer false inducements to cause the mechanics of the country generally, the most of whom already have hard work to support themselves and families, to spend their time and money for nothing? The above device seems to fulfil every condition of the law, and besides, it "has been for some time regularly employed on the Erie Canal," so that its existence and value was certainly known to all concerned in framing the law previous to its enactment.

We do not wish it understood that we oppose the offering of a handsome prize for valuable inventions; but what we do oppose is the special legislation of money out of the pockets of the people into the pockets of a certain person, and his admirers and followers, by blinding the people with a law pretended to be for the benefit of all. If the invention is a valuable one, its proprietorship will be the inventor's reward.

What we would like to see would be a law appropriating \$75,000 to be used in testing the inventions which promise the best results, and the remaining \$25,000 to be a premium to the inventor of the one chosen as the best. This would offer inducements to every class of inventors and would in the end produce the best practical results.

## Characteristics of the Brain in Different Animals.

Prof. Wilder at a late meeting of the Ithaca Farmers' Club, showed the brain of a kitten a day or two old. It had quite an imperfect appearance as compared with the brain of an old cat. The reason, he said, is obvious, the kitten is born blind and helpless; it learns to move and act—hence it is born with but partially developed brain. There was also the brain of a calf and of a steer—both were nearly alike except as to size. The reason is obvious—the calf at once or soon is to use its limbs and all its faculties, and hence its brain is so perfect.

Dr. S. J. Parker, called attention to the four brains exhibited by Prof. Wilder. Those of the calf and steer are coarse in their convolutions, both in the cerebrum and cerebellum, while the cat has a finer convolution in her cerebrum and a very fine convoluted cerebellum. He says the reason for this is also plain. The motions of the calf and cow are coarse and rough compared with the cat. The mind of a cat is limited in capacity, but keen and exact as far as it goes, hence the coarser cerebrum, while the motions of a cat are peculiarly graceful and brilliant, hence the fine texture of the cerebellum. If, then, the theory is true that the cerebrum is the organ of the body by which the mind acts, and the cerebellum is the organ of muscular combinations, then this exhibition of brains corresponds with our knowledge, and is a happy proof of our ascertained facts. Such are the uses of the exhibitions of these specimens.

TRAINING HORSES.—An ingenious German has gained a great reputation in New York by his success in training coach-horses to a grand gait. He used no burr-bit or other cruel contrivance, and people couldn't see how he did it until it was found that he put magnifying goggles upon his horses, which made cobblestones look like boulders, and they acquired a grand tread by trying to step over them.

## GOOD HEALTH.

## Disinfecting Excreta.

It is of the greatest importance that people be made to know that human excreta from all persons affected with typhoid fever, scarlet fever, cholera and other infectious diseases should at once be disinfected by diluted carbolic acid, or sulphate of iron. Typhoid fever for instance, often spreads through a family, or a neighborhood by means of the water used; but it is likely that ten times as many cases are generated by means of the poison passing through the air. Now how does the poison get into the air, and find its way to the bodies of other persons in such quantities often as to assume an epidemic form? Mainly, it is believed, by the excreta. Disinfect this. Kill those poison-germes that arise into the air in swarms, and there is little danger of the spread of infectious diseases. We do not claim that all infectious diseases come from germs generated in the excreta, but in civilized communities a majority of them either arise from the excreta, the breath, or the skin. Kill them as fast as formed without injury to the body, and you at once prevent the spread of the disease. Dr. Budd, an eminent English physician, declares that "from the day when I first began to think on these subjects, I have never heard a doubt that the specific cause of contagious fevers must be living germs." These living germs are generated in the filth of the world. Prevent them from breeding, and you prevent most of the diseases that afflict the race. The amount of excreta that accumulates about the dwellings of every family is very great. Even from healthy persons it may cause disease. To prevent this we advise general disinfection and cleanliness—one of the most important hygienic agencies in preventing the spread of disease that we can at present adopt.

## Meat in Summer.

Whatever may be said in regard to the use of meats generally, there is scarcely a question that the less meat eaten during hot weather the better. In the first place, the process of decomposition commences in meats the moment the animal is slaughtered, and continues without cessation, unless arrested by salting, smoking, etc., until it is entirely decomposed. In hot weather this process proceeds very rapidly. Meat just from the butcher is always tough, and it must become partly decomposed before it becomes tender and fit to eat. It is this decomposition that makes it tender, and the further this process has proceeded, the tenderer the meat. The eating of meats in this condition, especially in hot weather, poisons the blood with the products of decomposition, stimulates the system to unnatural action, increases the heat, produces a general condition of feverishness, and renders the person more liable to fevers, inflammations, and other diseases. If the meat gets a little too "tender," it is almost certain to bring on an attack of diarrhea, and many cases are caused in this way. If you value health and comfort, use meats sparingly and fruits and vegetables freely during hot weather, if at no other time.—*Herald of Health.*

VENTILATION.—The experience of Dr. Gray in his attempts to perfect the ventilation of the Utica Asylum, points clearly to the fundamental fact that no very large building can be ventilated with currents of air produced by heat alone. Artificial currents produced by mechanical power must be employed. The means used in this institution are a large and powerful fan wheel, driven by a fine Corliss steam engine. By its constant action, every nook and corner of the vast building was kept in a delightful state of coolness on the day of our visit, though the thermometer indicated 80 deg. Fah. in the shade. A large volume of air was constantly flowing through the various wards, yet there was no perceptible current.

A QUICK RECOVERY.—A Scottish trader was constantly afraid of his health, and imagined himself ill of every epidemic that was going. At length the cattle plague broke out, and he persuaded himself that he was ill with the disease, and sent in haste for the doctor, going over the symptoms of which he had read in the papers, all of which he fancied he had. "I hope you don't really feel so," said the M. D., "for there is an order by the Privy Council that every beast with these symptoms, must immediately be shot." The trader was soon well again.

## Compression of the Feet.

This is a common practice, that often results in distortion. When we are walking with the feet unrestrained, each foot as it receives the weight of the body, broadens slightly, and lengthens to the extent of half an inch or more. Freedom of motion in the foot itself is thus seen to be a natural requisite, and without it, ease, grace, and comfort in walking are out of the question. Compression by the boot or shoe not only prevents this freedom of action, but also gives rise to deformity of the feet. The sole of the boot should be as wide as, and somewhat longer than the foot, when the weight of the body is resting upon it. The upper leather requires to be soft and yielding, and not so tight as to pinch the foot down upon the sole. The toe of the boot ought to be wide, leaving the toes perfect freedom of movement. If too narrow, they are made to override each other, thus producing the ingrowing toenails, corns, bunions, etc. The heels should be low and broad, so as to furnish a firm support. High heels throw the feet forward toward the points of the boots, and tend to produce flattening of the arch of the foot.—*Herald of Health.*

SLEEPING ON THE RIGHT SIDE.—Sleeping on the right side, in addition to permitting a freer action of the heart, has the great advantage of favoring the escape, through the pyloric orifice of the stomach, of that organ's contents by gravitation; the stomach then lying in an inclined position from left to right, which it also assumes when one is in the erect attitude. For people who limit themselves to light or easily digested suppers, or who go supperless to bed, the posture of rest may be a matter of indifference; but to individuals who are inclined to rotundity, or indulgence in hot suppers and accompaniments, the best way to avoid, or facilitate escape from uneasy sensations, is a question of interest.

DOCTORS AND THEIR FEES IN THE "OLD TIMES" IN IRELAND.—The *Medical Gazette* says: "The following curious mode of providing for the payment of the medical profession, prevailed in Ireland under the Brehon laws prior to the thirteenth century. A law in relation to the doctors, enacted that their fees should be proportioned to the rank of the patient, and the nature of the complaint. It was also held that no fee should be paid unless a cure were effected. Fourteen *cumhals*, or forty-two cows, for example, were the fee for curing a bishop, or local chief, while the health and bodily welfare of a member of the lowest rank of the tribe, were valued at six cows."

AIR BEDS IN THE MORNING.—The wise housekeeper should see to it that all the beds should be aired immediately after being occupied. The impurities which emanate from the human body from insensible perspiration, are made up of minute atoms, which, if allowed to remain long, are absorbed by the bed, and will then, to a greater or less extent, vitiate the air for a considerable time afterward. Let the occupant throw the bed open on rising, and as soon as convenient open the windows and ventilate the sleeping-room. One hour's early ventilation is worth two hours' late airing.

MEDICAL KNOWLEDGE IMPORTANT FOR ALL.—It is a duty which every man owes to himself, to his family, and to the community in which he lives, to have sufficient knowledge of medicine, that under all ordinary circumstances he may be able to preserve his own health, act intelligently in concert with others to preserve the health of the community, give assistance in case of accident, and aid the physician in the case of disease by proper care and good nursing.

QUININE BISCUITS.—One of the London bakers has introduced a dietetic novelty in the shape of quinine biscuit. Each biscuit is estimated to contain one-fourth of a grain of quinine, and for delicate stomachs, or where it is desirable to disguise medicine as much as possible, or to combine food with medicine in a perfectly agreeable form, these biscuits are likely to become very popular.

CARPETED FLOORS.—When a carpet is taken up to be cleaned, the floor beneath it is generally very much covered with dust. This dust is very fine and dry, and poisonous to the lungs. Before removing it, sprinkle the floor with very dilute carbolic acid, to kill any poisonous germs that may be present, and to thoroughly disinfect the floor and render it sweet.



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, Sept. 16, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Sept. 13, 1871.—Legal Tenders buying 83; selling, 88½. Gold in New York to-day, 113½.

## Table of Contents.

The Roasting of Ores—III.; Peace River Mines; This Mining Report for 1871.....	161
MECHANICAL PROGRESS.—The Preparation of Fanciful Soaps; The Microscope for Testing Steel; Hardening Rails; Extraordinary Railroad Iron.....	162
SCIENTIFIC PROGRESS.—Psychic Force; Furnace Temperatures; A New Alkaloid; Testing the Quality of Metals and Alloys; Oxygen from the Atmosphere; Oxidation of Ammonia.....	162
East Canon, Ophir District, U. T.; This San Diego Mines; Agriculture in the Mountains.....	163
MINING SUMMARY.—California, Nevada, Arizona, Colorado and Utah.....	164
Stock Market; Mining Share holders' Directory, etc.....	165
Patents and Inventions; Craig & Brevoort's Patent Condenser for Steam Pumps—III.....	166
Canal Propulsion; Characteristics of the Brain in Different Animals; Good Health.....	167
Visit of the Scientists; New Method of Casting Pipes; Assay of Gold.....	168
Automatic Gats—III.; Water pipes for Household Purposes; Notes at the Mechanic's Pavilion.....	169
Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.....	170

## Visit of Scientists to California.

The American Association for the Advancement of Science has accepted the invitation of the California Academy of Sciences to meet at San Francisco next year, upon the condition that arrangements can be made which will enable the best scientific men of our country to get across the continent. Scientists are seldom much blessed with an abundance of this world's goods; hence the necessity for the above conditions. If this body of scientists hold their next meeting in this city, they will be accompanied either by a number of distinguished European savans, among whom will be numbered Tyndall, Huxley, and others. Their meeting here would be an important and a memorable one, and one which cannot fail to be of vast benefit to the State. Governor Stanford, of the Central Pacific Railroad, will issue tickets at half price, and it is supposed that other railroads at the East will do the same. About \$7,000 will be required for the balance of the travelling expenses of such, as it may be desirable to present with free tickets, and to meet such incidentals, while here, as may be required to enable the Academy to do its duty handsomely to its visiting brethren. It is to be hoped that some of our "solid men" will come forward with the needful, and secure for our city and State this much to be desired visit.

IN MONTANA.—Mr. Wm. H. Murray, our corresponding agent, is now visiting Montana Territory, and will inform us briefly of the progress of its mining, farming, and other industries. Our list of subscribers there, already outnumbers that of any other journal published outside of the territory and will probably be greatly increased.

## New Process of Casting Water and Gas Pipes.

We were much interested, on Friday last, in examining at the foundry, corner of Harrison and Main streets, a new process which has recently been introduced on this coast, for the casting of water and gas pipes. This process, which is the invention of, and has been patented by John Farrar, of Boston, Mass., consists in the substitution for the ordinary clay molds, of a sectional 3-part, cast-iron flask, attached together with hinges, and secured by strong wrought-iron clamps. The inside of the flask (which constitutes the mould) is lined up with a preparation of fine clay and plumbago, secured in place by flanges, and which effectually resists the action of heat, over 600 having been cast from one flask without retiring. The flasks were ready for use, and suspended on trunnions, one end projecting over a pit. The process of casting consists of putting in place a core, clamping the flasks and hoisting it up on end; the molten iron is then poured in at the top, filling the space between the core and flask, and thus forming the pipe. As soon as the metal has "set," the flask is brought down to a horizontal position, opened and the pipe taken out. The lining of the flask is then washed with a preparation of black lead laid on with large paint brushes, when the process of casting is immediately repeated.

An average of about five pipes an hour is thus made from each flask while the heat lasts—which usually continues from two to three hours. On the occasion referred to three flasks were alternately used, by a gang of 18 men, who turned out a pipe about every five minutes.

The advantages of this process are: The flask makes a permanent mould, admitting of the casting of an indefinite number of pipes without renewal; uniformity in thickness, secured by equal pressure upon the core-barrel, and a close texture of metal and absence of sand holes—porous places, which are inevitable where it is cast horizontally. Messrs. Rankin & Brayton, the proprietors of these works, have now four flasks in position, from which they are casting from 500 to 600 feet per day of 4, 5, and 6-inch pipe. Other flasks, embracing all the usual sizes, will soon be in readiness, giving the works a capacity of one thousand feet per day.

The usual process for making pipe in the East is that of the ordinary sand mould, which requires an iron flask for each pipe, necessitating a large outlay for the equipment of a foundry of any capacity. The extraordinary advantages of this process are apparent, when it is seen that no moulding is required, and one flask is made to do the work of 12 or 15 on the old plan. This invention is justly regarded by iron men as the most important improvement ever introduced into this branch of the foundry business. The gentlemen above named have secured the exclusive use of the process for this coast, and the very remarkable facilities it affords will enable them to compete successfully with either Eastern or European manufactures, thus adding another most important and useful industry to our list of local manufactures. Some idea of the saving which this invention will secure to this State may be formed from the fact, that something like 60 miles of pipes are now on the way from the East to this city; but that in view of the improved facilities hereby offered, no eastern firm can hereafter afford to enter into competition with the work here.

The inventor having made the demonstration here, complete, will soon go East to introduce the process into the larger eastern foundries.

The above firm have been engaged for several months past in filling large pipe orders for the Metropolitan Gas Co., of this city, including some two miles of 16-inch drain, now being laid from Montgomery street to the works, corner of Ninth and Brannan. They have also additional orders in hand for some 20 miles of pipes, of various sizes, for the same company, as well as several orders from the interior gas and water companies.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

To make absolutely accurate assays of gold bullion requires great care, considerable skill, and first class apparatus.

It must be considered that the assayer who sends out bars stamped with his name, becomes responsible for all mistakes, and his reputation will suffer in proportion to the number of his errors. He should therefore take every precaution, and know that his assays are correct before he allows them to pass from his hands.

The skill may be acquired by practice, but the apparatus must not only be of the best quality, but must be kept in the most perfect adjustment. It is not enough to purchase chemicals which are marked "pure," or a balance or weights supposed to be accurate. The chemicals must be tested, and the accuracy and adjustment of weights and balance verified before accuracy of results can be certain.

Some assayers stamp their bars less than the true fineness, as ascertained by assay, so as to have a small margin to cover possible errors; but this is not doing justice to those who employ them. It is far better to use sufficient care to make the assays accurate, and then stamp the bars the full fineness as found.

The process of assaying gold bullion is obviously divided into several operations, as follows:

- 1st. Melting the crude gold, and casting the bar.
- 2d. Cutting the assay chips from it.
- 3d. The assay proper.
- 4th. Calculating the results.
- 5th. Stamping fineness and value on the bar.

For the melting, a wind furnace is best, but a good coal stove such as are used in offices for warming, will answer the purpose, if the amount operated upon is small.

The improved portable assay furnaces, which are sold by the San Francisco dealers, are admirably adapted for the use of assayers who melt small quantities only. The whole process of melting and assaying may be conveniently performed with the same fire. While the fusion is being made the muffle becomes hot and is ready for the process of cupellation.

This furnace is made of sheet-iron, lined inside with fire brick. Near the centre is the muffle, while on top is placed a sheet-iron pan, which serves the double purpose of a cover, and a convenient sand bath, in which the boiling may be conducted as will be described. This furnace has been lately improved by Messrs. John Taylor & Co., of this city, by placing the grate bars more distant from the bottom of the muffle, leaving space for the burning coal to fall below it. An opening is also provided through which fuel may be added below as well as above the muffle.

With this furnace gold to the amount of one hundred ounces may be melted, while the muffle is sufficiently capacious to admit of six cupellations at once.

The crucibles best suited to casting gold are those known as black lead crucibles. Small quantities may be melted in ordinary Hessian or sand crucibles, or those of French clay. For any small quantities the ordinary crucible tongs only, will be necessary; but for over fifty ounces it will not be safe to grasp the edge of the crucible with the tongs. In this case tongs must be provided, such as are used by the brass foundries,—which are constructed with crescent-shaped jaws, which close upon the outside of the crucible. Tongs must be made to fit the various sizes, so that when placed in a grasping position on the crucible rim an iron ring may be slipped over the ends of the handles to hold them together with a slight pressure.

Before a black lead crucible can be safely used, it must be annealed, were this neglected and it should be placed in the fire, without this precaution it would soon fly to pieces. This result is caused by the water which it contains being converted into steam and the structure of the material being such that it cannot make its escape, destruction of the crucible must follow.

It is best to commence annealing the crucible some time before it is wanted. It should be set near the hot furnace and turned occasionally. When the fire is nearly spent it may be placed rim downward upon

the hot sand in the pan on top of the furnace. A day or two of such treatment will make it safe to hold it over the open furnace, by the aid of the crucible tongs, or on a poker. After it has been frequently turned and is hotter than boiling water, it will be safe to place it rim down upon the burning coals. When the rim is red hot all danger is passed and it may be turned and placed in position for the reception of the gold.

If the fuel is charcoal, it will be found best not to use small pieces or at least not coal dust. Pieces the size of an egg or larger will make the best fire. When the crucible becomes red hot, a piece of ¾ inch gas pipe is used to blow out any dust or ashes that may have fallen into it, a cover is placed on it and pieces of coal built up around it; this is best done with a pair of cupel tongs. The position of the crucible in the furnace, such as I have described, should be on one side of the muffle, not upon it, but the bottom of the crucible should not be permitted to sink much below the level of the top of the muffle. In the event of its doing so, it may be grasped with the tongs and gently lifted, allowing the coal to fall below it.

When the crucible has attained a full red heat, one or two spoonfuls of borax is wrapped in paper and placed in it by the aid of a pair of long cupel tongs. The spoon I use for fluxes is one made of horn about the size of an ordinary table spoon.

When the borax has melted, wrap a small quantity of gold dust in paper and place it on the crucible in the same manner. Several portions may be thus added according to the size of the crucible. A fresh supply of charcoal must be placed round the crucible when required, the cover having been previously replaced. When the gold has melted down, more is added in the same manner, until the crucible has received all that is to constitute the bar. In the meantime the ingot mould in which it is intended to cast the gold must be made clean and smooth inside. This is best done by rubbing with sand-paper and oil, or with a dry piece of pumice stone. It is then wiped dry and clean with a rag, oiled slightly and placed on the edge of the furnace in such a position that it may become quite hot, not so hot, however, as to approach redness nor to cause the oil to burn.

[To be continued.]

## Close of the Mechanics' Institute Exhibition.

### Award of Premiums.

The Eighth Exhibition of the Mechanics' Institute closed on Saturday last, and in a few weeks the old structure on Union Square will disappear; but the recollection of the scenes with which it has been connected will long linger in the memory of both old and young.

The exhibition just closed has been an eminently successful one, both in the display itself, and as a financial enterprise. The closing ceremonies were preceded by an excellent and appropriate speech from the President, Mr. Hallidie, in which he remarked that it had been opened for 29 days, and that it would probably be many years ere another would be held. By an actual count, 21,756 persons had visited the Fair in a single day. The number of entries had been 1,895; the total receipts \$60,000—expenses, up to that time, \$26,000; which would leave a balance toward paying off the mortgage on the Institute, Library building and increasing the library itself, of \$34,000, to which amount would be added about \$12,000 more by the sale of the building, fixtures, etc.

We shall give the Premium List next week.

ALMOST FOUR TO ONE.—The total amount of the cereals—wheat, rye, oats, barley, corn, and buckwheat—raised in the United States last year is estimated at one thousand five hundred millions of bushels; or about 38 bushels to each individual in the country. The average consumption is about eight bushels to each person; hence we have for export, for feed, for stock and for distilling purposes about 29½ bushels to each person.

THE advertisement of "Frey's Improvement on Evans' Under-current Sluices," next week.



## SELF-ACTING GATE.

This invention, which we originally illustrate, relates to that class of gates which work automatically. By an ingenious mechanical application it is arranged so as to open and shut at pleasure, by the passage of the wheel of the vehicle over a crank in the road. These cranks are arranged so that running over them, on either side, in the direction of the gate, opens it, and by going from it the gate is closed. A system of gears, rods, chains, and pulleys, connect the cranks with a toothed wheel operating in a rack under the base of the gate, as partially shown, which moves it open or shut, according to the direction the cranks are operated. The construction of the frame may be varied according to taste, and the roadway planked or not, as desired. The machinery is light and simple, yet sufficiently strong to last for years, and is comparatively reasonable for the real convenience of its use. As a general thing, but two cranks are required, one on each side of the gate; but in the case represented by the accompanying cut, there are two cranks on one side and one on the other. In entering the gate from the road, where there is not room enough to turn and enter the gate directly facing it, a crank on each side is more convenient from the fact that an approaching vehicle would have ample room to pass over either crank, and then make the turn without cramping or other difficulty. The bed timber, with the rail on top upon which the gate slides, is firmly imbedded in the ground, and the gate, resting on it, is thereby prevented from sagging, and the guides on the rails retain it in the proper position.

High winds do not affect its working freely, and it cannot be left open except through the neglect of the driver to run the wheel over the crank opposite the one by which the gate was opened. No cattle, however vicious, can get through it; for, on closing, a spring snaps through the gate into the beam, precluding the possibility of running it back except by means of the crank or a human hand. The cranks can be placed at any distance from the gate, by means of the boxes buried in trenches through which the leading rods run, so that a team of any number of animals can pass through without the driver having to leave them.

The patent for this gate has recently been allowed through our agency to Edmund Higgins, now of Vallejo.

**THE ENGLISH TELEGRAPH SYSTEM.**—Under the management of the Post-office Department, is proving a decided success. While the cost of telegraphing has been greatly reduced, the net earnings have been increased, and during the same time the work of extension and repairing has been more than the average of past years. The time is not far distant when the telegraph system of this country also, will be placed under government control, and be made a part of our post-office system.

**CHICAGO LARD** is being received at the rate of one and two car loads per week, and finds ready sale, three car loads having been sold in this city the past week.

## Water Pipes.

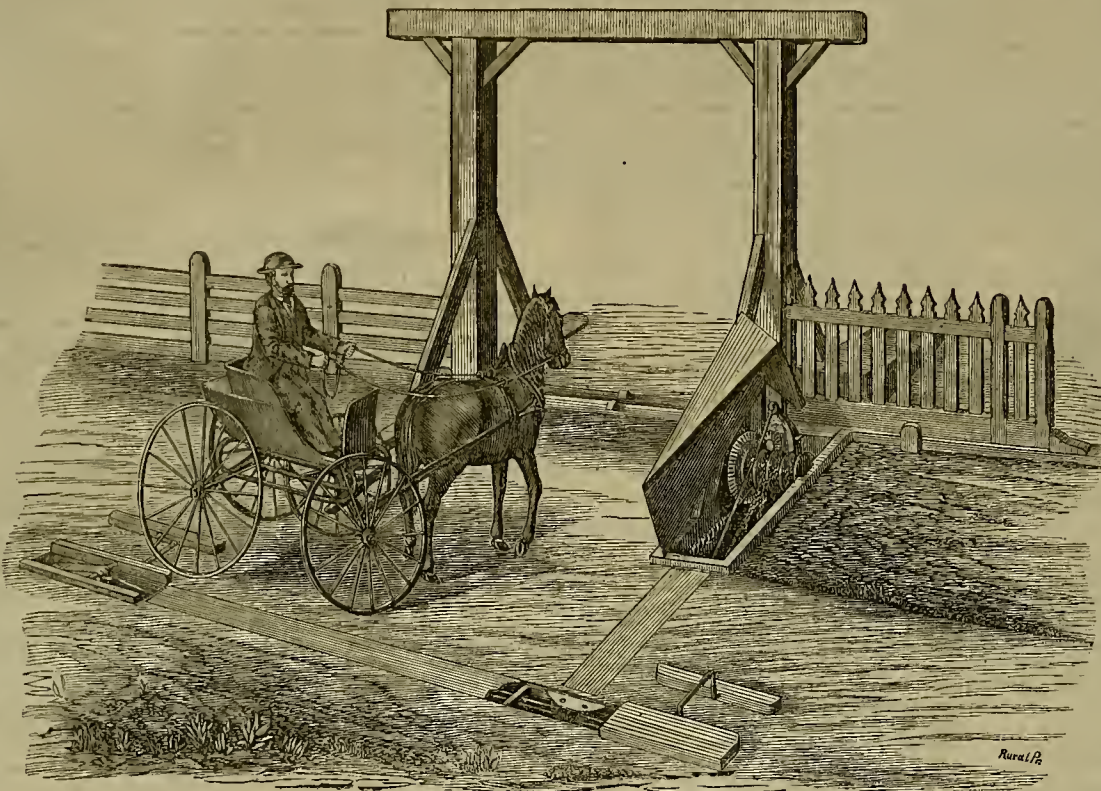
BY OUR NEW YORK EDITOR.

What Shall we use for Service Pipes for Household Purposes.

This most important question has been answered in a dozen different ways within as many years but people even yet do not seem satisfied. Let us look at some of the materials which have been brought forward to answer this question. Galvanized pipe, bad from the first moment. The lining of zinc too thin to be of any use in protecting the iron. Zinc is poisonous and so are its compounds. It is readily taken up by the water and in fact it protects the iron at the expense of its own corrosion. Iron, is fairly safe, but not good. Iron will rust, and iron rust water is better for a medicine than for a drink or for household

The tin is as thick as safety requires, and the lead outside is as strong as you want it, like any lead pipe. "How shall you know this pipe if you see it?" The inside is almost as bright as silver and on the outside are four little ridges extending the whole length of the pipe equally distant from each other.

If you inquire about this at your plumbers there is no knowing what they will tell you. They have all manner of stories about "can't solder joints," "unequal expansion" of the two metals, worse than lead, etc., etc. We have heard all that before, and from people who knew better. Just tell them, however, that another New Yorker invented a joint which is as strong as any part of the pipe and don't take a plumber to make it either. It don't cost much. It does away with all the trouble that they have ever had with such work; its quicker too. Now I have no ax to grind, and I can't tell you anything about prices, though it is my impression that it costs about the same as lead pipe; a little more



HIGGINS' SELF-OPENING AND CLOSING FARM GATE.

uses, as it is ruinous to the teeth. Lead; almost all waters corrode lead and carry it along with them. One water in ten may not, but the reverse is the rule and it won't do to trust that the water you use is an exception. Lead pipe makers tell you that it is safe. They have an ax to grind and lie to help the grinding. They know that the best of drinking waters in almost every case will corrode lead and the water will be poisoned.

The worst of lead poisoning is that you may take a little now and not feel it, a little next week and no effect, and so on, but when the whole amount is sufficient to produce the poisoning, then look out. Not a particle of lead that once gets into the system ever gets out. It is an accumulative poison. Rubber can't be trusted mechanically. Well you all know what I am coming at. Tin, yes that is the metal. Pipes were made with a wash of tin inside. It was too thin, it broke or wore away, exposed the lead and then you were as bad off as though the pipe was of lead in the first place. Some said galvanic action! That's a mistake, the metals are so much alike in some respects that galvanic action don't take place between them. So you are no worse off even after your tin is gone than if you had a lead pipe. But pipes are lined with tin in these days in a way that makes a tin pipe inside a lead one. A New York man invented the process several years ago. The thinnest coating of tin used, is as thick as card board. The lead outside is as stout as in any lead pipe. Here we have it then.

I think. I never bought an ounce in my life; I don't know the address of the firm that makes it; you will find it in almost any of the Eastern papers. I think I may be pardoned if I say that a letter addressed to Mr. — Shaw, 213 Centre street, New York City, — I don't know his initials — would probably bring you all the further information which you wish. I speak freely, because I feel that it is high time for people to understand that lead pipes will poison. It is only a question of time. Tin pipes and tin lined pipes are safe and they are not expensive when we look at the danger arising from the pipes in use. Now reader if you poison yourself with lead water pipes my hands are clear of you.

**CHLOROFORM AND ROBBERY.**—It appears to be the opinion of the most eminent medical writers that the reports of the use of chloroform and similar agents in facilitating robberies, etc., of persons while asleep, are without foundation—that such agents cannot be efficiently employed in stupefying persons against their will without alarming them. It is said that its application to a sleeping person is so attended with choking and retching, that the soundest sleeper would likely be waked before stupefaction was complete.

**GNATS IN THE EYES OF CATTLE.**—A serious eye disease among cattle is reported as prevailing in Kansas City, Mo. The supposed cause of the trouble is gnats getting into the eyes of cattle that drink at stagnant pools.

**BEEES** are now sent by mail, confined in a square block of wood, with auger holes bored in it and covered with wire gauze.

## NOTES AT THE S. F. MECHANICS' INSTITUTE FAIR.

[In these notes we have room only to notice briefly such articles as come specially under our observation. More replete descriptions of the most interesting and instructive exhibits will be given in the Press at our greater leisure hereafter. No classified catalogue being published we do not in this number give complete notices in any particular department.]

**PRESERVED MEATS.**—Messrs. Ross, Dempster & Co., make an exhibit of Australian preserved meats, a commodity which bids fair to form an important article of commerce.

**ROTARY DIGGER.**—This is a new device for breaking up the soil, invented by Mr. S. Johnson, of this city. The machine is intended as a substitute for plowing, harrowing and cultivating. Mr. J. is about adding an important improvement to the "digger" in the form of knives, which are intended to precede the digger.

**CALIFORNIA MADE AUGERS.**—We have

here another new item of California manufacture, made and exhibited by E. W. Mitchell & Co., of Napa City. These we believe are the first augers ever manufactured in California. They are made of the best cast steel and have the manufacturer's warrant that every instrument shall give entire satisfaction. We trust the experiment will prove a paying one.

**RAWHIDE BELTS.**—Mr. H. Royer, 437 Brannan street, makes a very fine display of his rawhide preparation for belting, lacing, etc. Mr. R. has been for several years engaged in manufacturing this kind of material the speciality of which is the production of a leather of complete pliability and tensile strength, which is unaffected by exposure or atmospheric changes. The machinery by which this is accomplished is secured to the inventor by letters patent.

**REMARKABLE CHERRIES.**—The branch containing 354 Queen Anne Cherries from Luellen's nurseries, Oregon, exhibited by Dewey & Co., have been looked upon with surprise by visitors in the horticultural department.

**DUTTON'S NEW HARNESS,** which has been tested three months, is spoken favorably of. It avoids the use of the ordinary collar and breast-plate, and is one of the most important inventions of the day.

**THE PRESERVES,** jellies, jams, pickles, canned fruit and vegetables exhibited by P. D. Code & Co., look inviting to the taste. This new firm are making a commendable success of their business in San Francisco.

**THE CAL. BEET SUGAR** is one of the most significant exhibits in the whole Fair. This new product is remarkable for its whiteness and purity.

**HEATH'S DOVETAILING MACHINE** is a California improvement which has worked very successfully at Swan, Dunbar & Co.'s factory, in this city. This firm has run a variety of machinery for making boxes, of which product they exhibit.

**PATENT WINDMILLS AND HORSEPOWERS.** of improved California manufacture, were exhibited by W. I. Tustin.

**SMITH'S TRUSS BRIDGE** was exhibited in model by the Pacific Bridge Co., of Oakland, W. H. Gorrill, President. It has been introduced on this coast during the past year, by the building of several structures, one of which, at Oroville, has a span of 214 feet in the clear.

**GRAPE STEMMER AND CRUSHER.**—Schoenstein & Kline inventors and patentees exhibited one of this new class of machinery, which we would advise persons interested in to examine at their place of manufacture, No. 5 Powell st., S. F.

**A TUCK MARKER,** by John H. Mooney, patentee, is one of the improvements for first-class sewing machines which our lady friends should examine.



## DOMESTIC ECONOMY.

### The Breakfast Table.

A family which has to hurry through breakfast misses a great deal of comfort. If one has to be at business at precisely such a moment, better rise early enough so as to have a leisurely breakfast hour. A cup of coffee is the foundation of a good breakfast—muddy coffee is the misery of a breakfast. The best way to make coffee is to put the coffee into a flannel bag suspended over the top of the coffee pot, and turn boiling water through it. Never let coffee boil except for a moment, as it comes to a boil. A little egg mixed with the coffee before it is put to boil is the best thing to make it clear.

A good beefsteak is a most excellent item in the breakfast bill of fare, if it be broiled. Fried, it is an abomination.

Hot huckwheat cakes or waffles with maple syrup are the felicity of the breakfast hour.

Fried potatoes, if properly served, are a great luxury. The French style of cooking potatoes is the best. Slice potatoes very thinly and wash them. Then drain and wipe and quickly drop them into hot fat. When done turn them into a colander, sprinkle salt on them and serve hot. If you wish them light or swelled, leave them in the colander only about half a minute, then put them back in the fat. If the fat is very hot when dropped into it the second time, they will swell.

Omelets and broiled ham make a nice breakfast.

Hammered biscuit are a nice special dish for breakfast—very popular in the South. A lady gives the following receipt for making them:—With a quart of flour rub thoroughly a heaped tablespoonful of lard, add cold water or sweet milk enough to make a very stiff, dry dough; work and beat it an hour and a half. Some people say give three hundred blows with a mallet. When it blisters or pops it is ready for the oven. Bake carefully until biscuits are a light brown.

On this question of eating, Dr. W. Hall says that it is not wise to eat by rules made in the chemical laboratory, or in the study of the philosopher. Eat what you feel like—that is, partake in moderation of what is most palatable to you; but if in rare cases it is found that what you are most fond of is followed by disagreeable results, gracefully yield to nature, and avoid it for a while at least.—*Ex.*

### Hints for Housekeepers.

To drive biting bugs, pass through the room with a hot shovel on which some brown sugar has previously been placed.

For fruit stains on napkins, table-cloths, etc., pour hot water on the spots—rub in hartshorn or oxalic acid dissolved in hot water.

Never rub soap on flannel. Make a suds by dissolving the soap in warm water. Rinse in warm water; very cold or hot water will shrink flannel. Shake them out several minutes before hanging to dry. Blankets can be washed in the same way.

A hit of glue dissolved in skim milk will restore crapes.

Ribbons of every kind should be washed in cold suds and never rinsed.

If your flat irons are rough, rub them with fine salt and it will make them smooth.

A hit of soap rubbed on the hinges of doors will prevent their creaking.

Scotch snuff put in holes where crickets come out will destroy them.

Strong lye put in water will make it as soft as rain water.

Half a cranberry, it is said, hound on a corn, will soon kill it.

If you want to keep "posted" in matters pertaining to household duties generally, read this page of the *RURAL* every week.

**HOW TO MAKE COMMON HARD SOAP.**—Put in an iron kettle five pounds unslacked lime, five pounds soda, and three gallons of soft water; let it soak over night; in the morning pour off the water, then add three and a half pounds of grease, boil till thick, turn into a pan until cool, and then cut in bars.

**CLEANING TINWARE.**—An experienced housekeeper says the best thing for cleaning tinware is common soda. She gives the following directions: Dampen a cloth and dip in soda and rub the ware briskly, after which wipe dry. Any blackened ware can be made to look as well as new.

### To Preserve Citrons.

Citrons, well prepared, constitute excellent sauce. Pare off the outer skin of citrons, and cut them into quarters. Take out the middle. You may divide each quarter into several pieces. Lay them four or five hours in salt and water. Take them out, and then soak them in spring or pump water (changing it frequently) till all the saltiness is extracted, and till the last water tastes perfectly fresh. Boil a small lump of alum, and scald them in the alum water. It must be very weak, or it will communicate a very unpleasant taste to the citrons; a lump the size of a hickory nut will suffice for six pounds. Afterwards simmer them two hours with layers of green vine leaves. Then make a syrup, with half a pint of water to each pound of loaf sugar; boil and skim it well. When it is quite clear, put in the citrons, and boil them slowly, till they are so soft that a straw will pierce through them without breaking. Afterwards put them into a large dish, and set them in the sun to barden.

Prepare some lemons, by paring off the yellow rind very thin, and cutting it into slips of uniform size and shape. Lay the lemon rind in scalding water, to extract the bitterness. Then take the pared lemons, cut them into quarters, measure a half pint of water to each lemon, and boil them to a masb. Strain the boiled lemon through a sieve, and to each pint of liquid allow a pound of the best double refined loaf-sugar for the second syrup. Melt the sugar in the liquid, and stir into it gradually some beaten white of eggs; allowing one white to four pounds of sugar. Then set it over the fire; put the lemon peel into the syrup, and let it boil in it until quite soft.

Put the citrons cold, into a glass jar, and pour the hot syrup over them. Let the lemon remain with the citrons, as it will improve their flavor.

If you wish the citrons candied, boil down the second syrup to candy height (that is, till it hangs in strings from the spoon), and pour it over the citrons. Keep them well covered.

You may, if you choose, after you take the citrons from the alum water, give them a boil in very weak ginger tea, made of the roots of green ginger if you can procure it; if not, of race ginger. Powdered ginger will not do at all. This ginger tea will completely eradicate any remaining taste of the salt or the alum. Afterwards cover the sides and bottom of the pan with vine leaves, put a layer of leaves between each layer of citron, and cover the top with leaves. Simmer the citrons in this two hours to green them.—*Western Rural.*

### Examine Your Teapots.

A caution has lately been largely copied in the domestic columns of newspapers to the effect that cracked dishes, after being long used for holding gravies and fat of any kind, become rancid and unwholesome. And later comes another, with good medical authority to back it, against using tin vessels—more especially teapots—which have become rusted or blackened inside. The acid contained in the tea, combines with the iron of the exposed portions of the vessel, and forms a chemical compound, not unlike ink. It corrodes and darkens the teeth, and cannot be inoffensive to the stomach. I have seen the discoloration, both of natural and artificial teeth prove so obstinate, from this cause, as to require several scourings with soap and ashes, with a stiff brush, to remove it.

When housekeepers hear any of the family remarking, "This tea tastes like ink!" it is time to examine—possibly to throw away—the teapot.

The most palatable and wholesome tea is made by steeping in a bright tin or porcelain cup, then pouring into a freshly scalded earthen teapot. Thus treated it will never acquire the astrigent quality so deleterious to the teeth and to health.—*Ohio Farmer.*

**FILL YOUR LAMPS IN THE MORNING.**—Scarcely a week passes but we read accounts of frightful accidents from kerosene lamps exploding and killing, or scarring for life, men, women and children. A simple knowledge of the inflammable nature of the liquid may put a stop to nearly all the accidents. As the oil burns down in the lamp, inflammable gas gathers over the surface. When the oil is nearly consumed, a slight jar will inflame the gas, and explosion follows. If the lamp is not allowed to burn over half way down, accidents are impossible.

### Domestic Receipts.

**BROWN SOUP.**—One pound of turnips, one pound of carrots, half a pound and six ounces of onions, one and a half pints of peas, four ounces of butter, and half a pound of bread. Cut the vegetables into small pieces; put them in a pan with the butter; cover the pan, and let them stew over the fire till brown, occasionally stirring them; put in the peas, with the water in which they were boiled; add sufficient boiling water to make three quarts altogether; next add the bread, which should be browned or toasted before the fire, but not burnt; season, and let the soup boil gently for three or four hours; rub it through a coarse sieve; return it into the pan; let it boil, and it will be ready to serve. If dried peas are used, they should be steeped for twenty-four hours in soft water, and boiled for two hours.

**TO MAKE PICKLES HARD USE ALUM AS FOLLOWS:**—To a gallon of vinegar add one ounce of powdered alum. If the vinegar is put into bottles tightly corked and set in a kettle of cold water, with hay or straw between them to keep the bottles from knocking together, and allowed to remain over the fire until the water boils, then removed and kept in the kettle until nearly cool, the vinegar will keep perfectly clear when used for pickles, but it should be added to them cold. Shreds of horseradish root will prevent all pickles from moulding.

### Mechanical Hints.

**HOW TO CLEAN CHROMOS.**—In answer to numerous inquiries, *Prang's Chromo* says: "When you clean them, use a soft brush, or wipe them with soft chamois skin, (a drop of oil may restore clearness,) or with a fine linen rag very slightly dampened. Always tenderly. Next, whenever the original varnish coating is dulled, bruised or rubbed, revarnish it with thin mastic varnish. Chromos, like oil paintings, should not be hung in a dark room, but in one with diffused light, and never exposed to the direct rays of the sun. The chromos, after water colors, keep and display better when plated under glass, as they lack the protecting cover of the varnish. The larger chromos, after oil paintings, display as a general rule, best when framed like original paintings. It is not necessary to put any of these under glasses; it is a matter of taste—preserving them, at the same time, from dust and rough handling.

**PLATING AND GILDING WITHOUT A BATTERY.**—A very useful solution of silver or gold for plating without the aid of a battery may be made as follows: Take one ounce of silver, dissolved in one quart of rain water. When thoroughly dissolved, throw in a few crystals of hyposulphite of soda, which will at first form a brown precipitate, but which eventually becomes re-distilled if sufficient hyposulphite has been employed. A slight excess of this salt must, however, be added. The solution thus formed may be used for coating small articles of steel, brass, or German silver, by simply dipping a sponge in the solution and rubbing it over the surface of the article to be coated. I have succeeded in coating steel very satisfactorily by this means, and have found the silver so firmly attached to the steel, (when the solution has been carefully made) that it has been removed with considerable difficulty. A solution of gold may be made in the same way, and applied as described. A concentrated solution of either gold or silver thus made, may be used for coating parts of articles which have stripped or blistered, by applying it with a camel-hair pencil to the part, and touching the spot at the same time with a thin clean strip of zinc.

**TO MAKE ARTIFICIAL MARBLE FOR PAPER WEIGHTS OR OTHER FANCY ARTICLES.**—Soak plaster of Paris in a solution of alum; hake it in an oven, and then grind it to a powder. In using, mix it with water, and to produce the clouds and veins, stir in any dry color you wish; this will become very hard, and is susceptible of a very high polish.

**INVISIBLE CEMENT.**—Isinglass boiled in spirits of wine will produce a fine, transparent cement, which will unite broken glass so as to render the fracture almost imperceptible and perfectly secure.

**TO LOOSEN SCREWS AND BOLTS.**—When you find screws and nuts have become fast from rust, pour on them a little kerosene or coal oil, and wait a few moments until they become soaked with the liquid. When this is done they can be easily started and the bolt saved.

## LIFE THOUGHTS.

THERE is no fool like the man who accounts himself wise.

MISERY dwells with the miser, but he follows the footsteps of the spendthrift.

THOUGH the sky rains chickens, they must be roasted before they are good for the table.

A FRIENDSHIP that makes the least noise is often the most useful; for which reason I should prefer a prudent friend to a zealous one.

PRIDE may sometimes be a useful spring-board to the aspiring soul, but it is much more frequently a destructive stumbling block.

ATOMS—A mountain is made up of atoms, and friendship of little matters, and, if atoms hold not together, the mountain is crumbled into dust.

SINCERITY is speaking as we think, believing as we pretend, acting as we profess, performing what we promise, and being what we pretend to be.

LOVE.—With love, the heart becomes a fair and fertile garden, with sunbined and warm hues; and exhaling sweet odors; but without it, it is a bleak desert covered with ashes.

### A Secret.

There are a great many persons who can not tell why it is they have so much difficulty in getting and keeping positions in business. If they are in business, they easily drop out; if they are out, they find it hard to get in. If they have a position to day they may lose it to-morrow; if they lose their place, they perhaps have to wait weeks and months before they secure another. They do not comprehend that while others are busy they should be unwillingly idle; that while others have as much as they can do, they have nothing to do.

There is a little secret, that will go far to explain the difficulty; there is a constant unsupplied demand, in all departments of labor, for skill, and it is those who possess this property that easily secure and retain situations, while those who possess it not, are forced to be idle. There is all the difference in the world between an expert clerk and a clumsy one—between a skillful salesman and an unskillful one—between a dexterous mechanic or laborer and an awkward one—between even a cheerful, and tidy house servant, and a careless, slovenly one. The value of skill applies to all vocations, and all departments of service. Whether a piece of work is well done or ill done may be a question of vast importance to the employer; it may be worth twice as much to have it well done, as to have it badly done.

A good workman may be worth twice as much as a poor one; an expert reliable clerk, who attends to his employer's business, as well as the employer himself would, may be cheap at two hundred dollars a month, while a careless clerk, who is not concerned how he does his work, so he gets through with it and draws his pay, may be dear at half the sum. A young man, with a good education, twenty-five years old, and of some experience, may imagine that his services are worth as much as another man of the same education, age, and experience; but he may be seriously mistaken in his estimate. His value is to be submitted to an employer for an estimate, and the qualities skill, tact, diligence, fidelity, and trustiness, are all to be considered in determining it.

If one man possesses the attributes in a high degree, and another lacks them, the former is sure of constant employment at liberal compensation, while the latter may be a large portion of his time out of employment, or able to command only an inferior salary. Labor is sometimes a glut in the market, but skill and efficiency are always in demand; if, therefore, a man who has always services to sell, would get a good price, and constant employment for them, let him, by diligent study and careful application, make himself master of his calling, whatever it be.

STICK TO ONE THING.—Every young man, after he has chosen his vocation, should stick to it. Don't leave it because hard blows are to be struck or disagreeable work to be performed. Those who have worked their way up to wealth and usefulness do not belong to the shiftless and unstable class, but may be reckoned among such as took off their coats, rolled up their sleeves, conquered their prejudices against labor, and manfully bore the heat and burden of the day.



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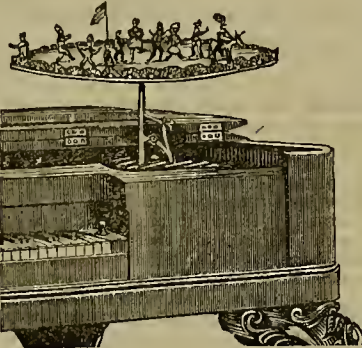
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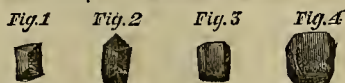
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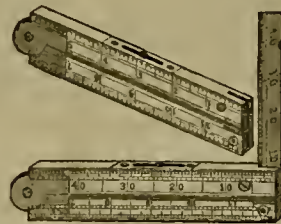
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**Travelers' Guide.**

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Sunday	Train	1871.	Train	Sundays
	except'd	Daily.	except'd	Daily.
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.
3:50 P.M.	7:30 A.M.	San Jose	5:30 P.M.	12:15 P.M.
8:28 P.M.	12:25 P.M.	Stockton	1:25 P.M.	7:32 P.M.
10:30 P.M.	2:10 P.M.	Sacramento	1:45 A.M.	6:00 A.M.
	4:10 P.M.	Marysville	5:40 A.M.	
	7:50 P.M.	Sesma	5:40 A.M.	
	2:30 P.M.	Sacramento	11:45 A.M.	
	5:25 P.M.	Colfax	8:45 A.M.	
	1:15 A.M.	Reino	1:00 A.M.	
	9:10 A.M.	Wanamucca	4:05 P.M.	
	12:00 M.	Battle Mountain	1:25 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	6:20 A.M.	Orden	5:20 P.M.	

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m. daily (except Sundays), and 3 P. M. daily. Returning  
leave San Jose at 7:30 a. m. daily, and at 3:30 p. m., daily  
(except Sundays).

**OAKLAND BRANCH.**—LEAVE SAN FRANCISCO, "6:50,  
8:10, 9:10, 10:20 and 11:10 a. m., 12:00, 1:30, 4:00, 5:15, 6:50,  
and "11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).

**LEAVE BROOKLYN,** "5:15, "6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.

**LEAVE OAKLAND,** "5:25, "6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

**ALAMEDA BRANCH.**—LEAVE SAN FRANCISCO, 7:20, 9:00,  
and 11:5 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruitvale only).

**LEAVE HAYWARD,** "4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
**LEAVE FRUIT VALE,** "5:25, 7:35, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.  
Sundays excepted.

**CALIFORNIA PACIFIC RAILROAD.**

4:30 P.M.	8:00 A.M.	San Francisco	11:30 A.M.	7:30 P.M.
5:50 P.M.	9:45 A.M.	Vallejo	9:45 A.M.	5:45 P.M.
8:00 P.M.	12:45 P.M.	Chilistoga	7:30 A.M.	3:45 P.M.
9:30 P.M.	2:15 P.M.	Marysville	6:30 A.M.	2:30 P.M.
8:15 P.M.	12:15 P.M.	Sacramento	7:30 A.M.	1:00 P.M.

One train Sundays—leaving San Francisco 8:30 a. m.

**SAN FRANCISCO & N. PACIFIC R. R.**

7:30 A.M.	9:30 P.M.	San Francisco	10:30 A.M.	11:00 P.M.
10:15 A.M.	5:50 P.M.	Donahue	8:12 A.M.	4:45 P.M.
10:35 A.M.	6:10 P.M.	Petaluma	7:50 A.M.	4:20 P.M.
11:15 A.M.	6:55 P.M.	Santa Rosa	7:10 A.M.	3:40 P.M.
12:00 A.M.	7:40 P.M.	Healdsburg	6:30 A.M.	3:00 P.M.

\*Sundays excepted. †Sundays only.

**CAL. P. R. R. CO.'S STEAMERS.**

5:30 P.M.	4:00 P.M.	San Francisco	12:30 A.M.	7:00 P.M.
6:30 P.M.	5:30 P.M.	Benito	10:30 P.M.	5:00 P.M.
2:00 A.M.	2:00 A.M.	Stockton	4:30 P.M.	
		Sacramento	12:00 P.M.	

\*Sundays excepted.  
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### BAD LEGISLATION.

From one stand point, whatever legislation encourages and fosters the agricultural, mechanical, and manufacturing industries of the State, and adds to the general prosperity of the country, we call good.

On the other hand, that legislation, the tendency of which, is to discourage these industries, and retard the country's prosperity, must necessarily be bad. England owes her superiority, as a manufacturing and commercial country, to her judicious legislation for the encouragement of these great industries.

France became one of the first silk producing countries in the world under the fostering care of favorable legislation.

Among our own States those that have given the greatest assistance and encouragement to agriculture, manufacture, and the mechanical arts—whether directly or indirectly through agricultural and mechanical organizations, are to-day in the enjoyment of the greatest degree of material prosperity.

The present condition of our own State requires a careful system of legislation on these subjects. We looked to the last Legislature with strong hopes that they would comprehend our wants—the wants and necessities of the laboring and industrial classes; but that Legislature seems to have been extremely unfortunate in this respect. Every statute that had been placed upon the statute book by previous Legislatures, with a direct reference to these objects, was by the last Legislature repealed, and those having an opposite tendency enacted in their stead.

For instance, in 1862, an act was passed for the encouragement of agriculture and manufactures in California. This act offered small premiums for the successful production of sugar or molasses from beet root, sorghum or cane; for flax, hemp, cotton, tobacco, hops, raw silk, tea, coffee, rice, and many other new and strictly agricultural products. It also offered premiums for many articles of manufacture new to this State, but which ought to be manufactured here, and could be, if properly encouraged. The encouragement of such industries has the effect to draw money from the banks and put it in general circulation among the people—the laboring class of the country; to stimulate enterprise, experiment, and invention; and to add to the general life and prosperity. The amount of premiums offered are generally trivial, compared to the increased taxable property thus brought into existence; and practically it is generally found that the increased taxes collected much more than pay for the premiums called for.

The Lottery bill is another instance of bad legislation. To say nothing of the immoral tendency of this legislation, which of itself should have condemned it, the effect on the industries of this State has been very bad. It has drawn not much less than three millions of money from circulation among the poor and working classes throughout the State, and concentrated it in the large towns and cities. It has taken it from the many, in small sums, and given it to the few, in large sums, without any exchange of consideration passing between them. It has drawn this large amount of money directly from the productive industries of the country—from the farming, mechanical, and manufacturing operations, and employed it in non-productive operations, in games of chance, which have not only been of no benefit to the country or to individuals, but a great damage to all.

The direct operation of this law has been to make the rich richer, and the poor poorer. Legislation in reference to the material industries should always be directed so as to induce the active employment of capital when it will give employment to

labor, and beget habits of frugality and industry among the laboring classes. The tendency and direct result of the legislation above mentioned, has been wholly the reverse of these—to concentrate the money in the hands of the few and to beget habits of recklessness and indifference. There were many other laws passed by the last Legislature, having the same tendency; but we will consider them at another time.

### South Africa Diamond Fields.

The special correspondent of the New York *World* writing from Du Tait's Pan, South Africa diamond fields, June 15th, says:

Du Tait's Pan, situated 20 miles south of Puiel, is turning out to be the largest and richest camp in the diamond district of South Africa. There are at least 15,000 white persons and 5,000 colored, making a population of 20,000 men, women and children, working at Du Tait's Pan and adjoining farms, De Been's and Bulfontein Diamonds are being dug out every day of from 1-16 to 20 carats in weight, and once a week one of over 50 and up to 100 carats in weight is turned out. Last Friday three diamonds, each weighing over 20 carats, were found at De Been's from three adjoining claims.

#### A Nest of Diamonds.

A man named Neniemer has taken out forty diamonds, weighing 150 carats, from his claim. The hole that he has worked out is only about six feet wide and fifteen feet long and an average of ten feet deep, finding diamonds all the way down, the largest a twenty-three carat gem. Rawstone, my last year's partner at Phiel, purchased the adjoining claim for £110, and turned out an eight-carat gem the next day. I have started three companies working at Bulfontein and Du Tait's Pan, and last week they found nine diamonds. Two of the parties I have started walked up from Cape Town—600 miles. They have found two diamonds so far. Two other Americans, who have the adjoining claims, have taken out an eight and a seven and a quarter carat diamond in two weeks; being defective, they were worth only £100 (\$500) but that will do for a month's work, and only one-tenth of the claim worked out.

#### A 55 1-8 Carat Stone Worth \$75,000.

America beat them all last week. Mr. J. B. Hopkins, from Lockport, Pa., came to South Africa two months ago, and last Monday, the wind blowing so hard, causing thick clouds of dust so that no one could remain in their claims. Hopkins meandered out from camp and over the plain, and observing some garnets shining on the ground about a mile and a half from camp he dropped on his knee and elbow, and picking one up commenced to scrape for more, when a bright point came to view. Scraping under this, out popped a magnificent 55 1/8 carat diamond, octahedron, flawless and speckless, of that peculiar straw color that is fashionable in England, and worth in the United States at least \$75,000. When it made its appearance Hopkins was paralyzed for a moment, and the diamond could have been taken from him without his having power to prevent it. He and I are partners now, and on the 4th of Sept. we leave for America, via Cape Town and England, with over \$100,000 worth of beautiful rough diamonds of all colors, shapes and sizes.

#### Americans on the Field.

There are about twenty Americans on the fields at present; their Post office is Klip Drift, South African Diamond Field. The names that I can remember are as follows: Isaac Sonnenburg who has a store at Jacobsdal and Du Tait's Pan, Dr. Blake and wife, Wm. C. Mills, F. B. Rickers, J. B. Hopkins, J. L. Bahe, C. C. Campbell (who has brought me in a five-eight carat diamond just found); Mr. Lindley, Charles Timmis, Major Bedee, Mr. Smith, Mr. King, Wm. Burns, Mr. Walker, Mr. Parrish, Mr. Marshall, Dr. Winn, Mr. Sinclair and Mr. Baker—the three latter are near here with a steam engine and a sugar dyer, to be used in diamond sifting. As wood is exceedingly scarce and dear (\$20 a cord) they will not do much with their engine, I am afraid.

#### Farms—Wells—Prospects.

The farms have all been opened at 10s. 6d. a claim per month for mining; the Orange Free State Government take 5s. of this tax and the proprietors of the farms the balance. Wells have been sunk at different places throughout the camp, but have not struck water. In the "Pan" water was struck, but it was very salty. The dam is getting very low, and water is now being hauled from a fountain five miles off. These mines will most undoubtedly last

for years, and there is working room for at least 100,000 people. It is becoming the general impression among geologists who are here, that this whole plain, 200 miles long by 100 in width, is the true matrix of the diamond.

#### The Town of Du Tait's Pan.

A town has been laid out at Du Tait's Pan, and around the public or market square numerous wooden and iron stores, hotels, billiards and whisky saloons and bowling alleys are being built. Saturday afternoon is devoted to auctions, of which there is half a dozen going at once. Provisions are cheap, and are auctioned off every morning by the market master in the square. California long-handled shovels are in demand, and can't be obtained; they would sell readily at from \$10 to \$15 each. There is a colonial duty on them; I do not know the amount, but I think 11 per cent. The weather is splendid, rather cold in the mornings and hot at noon.

#### Thoroughbred and Full Blood.

These terms are often misapplied, when used as synonymous. Every thoroughbred is a full blood; but every full blood is not a thoroughbred. Thoroughbred means in and in breeding, as does full blood; but the former means something more than that—it means in and in among the best of an identical kind—through and through the best of the best. Full blood may be simply through and through, with the same race, without regard to selection. Hence full blood is not or may not be thoroughbred; while thoroughbred must always of necessity be full blood. Sufficient care is not observed in making this important distinction.

**RAPIDLY SETTLING.**—The U. P. R. R. in addition to their through "Express," through "Mixed," and through "Freight" trains, have lately added a "Colony" accommodation, which leaves Omaha at 5.45 A. M., stopping at all stations, and arriving at Grand Island, 145 miles distant, at 4.30 A. M. Returning, leaves Grand Island at 5 A. M., arriving in Omaha at 3.40 P. M. This speaks in thunder tones for the settlement of the country. The rush of emigrants and colonists to settle along the line of this road this season has been enormous—far exceeding all others since the completion of the road. And well they may, as the lands for 200 miles west of Omaha are equal to any in like geographical position on the American continent. Yet it was only a few years since the "Red Man," in all his gentle ferocity and winning ways, dispossessed their possession inch by inch with the hardy pioneers, and the buffalo, antelope, and other game roamed over them in countless numbers. How wonderful the change—great is the "Iron Horse" and the "Union" is his prophet.—*Croft's Trans-Continental Guide.*

#### How to Dry Plants.

The inquiry is often made as to the best method for drying plants for an herbarium. The process is very simple. The specimens to be pressed should be collected when free from dew or other moisture, and spread upon a sheet of blotting or other absorbent paper, on the third page of the paper. The leaves and flowers should be spread very carefully, so as to show the structure and perfect shape of each. When the plant is thus arranged, the paper is folded together so that the second page rests upon the plant, and after a number are arranged, the whole may be placed in a pile and subjected to a slight pressure for a few days. It is not well to place the plants upon single sheets of paper, because they are very liable to disarrangement and injury. After the plants have become perfectly dry, they may be removed from the blotting paper, and placed between sheets of paper, and if desired may, be affixed by touching the under side of the stem and leaves with a drop of mucilage. When practicable the whole plant and root should be preserved.

THE CONTRA COSTA GAZETTE office, at Pacheco, entirely destroyed by fire on the 5th, will be restored with new type next week. Messrs. Bunker & Porter have not only made the *Gazette* a first-class country paper, but given it a higher reputation as a journal of influence and progress, and we hope and trust to see it prosper anew.

FRUIT FROM HEALDSBURG.—Healdsburg is shipping large quantities of fruit to San Francisco. So much for the railroad.

### Special to Inventors.

All inventors who secure valuable patents through the SCIENTIFIC PRESS PATENT AGENCY are specially favored with a liberal notice of the merits of their inventions in the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS—two first-class weeklies, the most widely circulated of any on this coast, reaching the very best classes for the benefit of our ingenious citizens. In many cases we know that such notices have been worth more to patentees than the whole cost of obtaining patents. While we give the most able and experienced counsel to inventors, our terms are more favorable to Pacific Coast inventors than those of any other Agency in the United States, besides the benefit derived from having their inventions set forth rightly in the start by gratuitous publication in more than one highly reputable journal.

### Trade Mark Patents for Merchants and Manufacturers

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In the United States. Parties interested will be furnished with all information desired, and have their application intelligently prepared and promptly forwarded to the Patent Office, and their patents secured in good time, by DEWEY & CO., U. S. and Foreign Patent Agents, No. 414 Clay street, S. F.

**INVENTIONS AND PATENTS.**—The brain of the inventor is constantly at work devising improvements in the modes of mining and the reduction of ores. Three inventions have originated in Austin, viz: The Stetefeldt and Bankert furnaces, and feeding and other mechanical contrivances by Mr. Standish, of the Manhattan mill. All these inventors secured their patents through the agency of Messrs. Dewey & Co., publishers of the San Francisco SCIENTIFIC PRESS, who never fail of giving satisfaction. Aside from their thorough knowledge of all the forms necessary in the securing of patents, the accurate drawings and extended descriptions of patents confided to them, in the columns of the SCIENTIFIC PRESS, are of immense benefit to the inventor, for they bring their inventions to the direct notice of that portion of the public which has an interest in new discoveries. Every mining community should patronize the SCIENTIFIC PRESS; and we learn with pleasure that Mr. Murray, the traveling agent of Messrs. Dewey & Co., has added a large number of Austin subscribers to his list.—*Reese River Reveille, Austin Nevada.*

Mr. Wm. H. MURRAY, special corresponding agent for the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS of San Francisco, arrived in Elko on 1st Wednesday, and is still engaged as usual in the interest of the two excellent papers mentioned, and we are glad to learn that he has been meeting with gratifying success. Mr. Murray comes here from the eastward, having just completed an extended tour through Utah and Colorado. He is here to visit the Railroad District, and from thence will go to Mineral Hill, Eureka and White Pine. Having canvassed those mining regions, he then proposes to inspect Cope and wend his way through Idaho. Mr. Murray has also been exerting himself in the interest of the great Industrial Fair to be held in San Francisco on the 8th instant, and hopes a good showing of minerals of Nevada will be made. Contributions of minerals and metals from the mines of Nevada will be given a prominent place and will be labeled, and will attract attention and capital to our mines. Wells, Fargo & Co. will forward, free of charge, all packages addressed to the Mechanics' Institute, care of J. H. Gilmore, San Francisco.—*Independent, Elko, 5th.*

THE RURAL PRESS.—Believing as we do that every farmer in our valley would be well repaid for the expenditure of a few dollars in procuring a good paper specially devoted to the agricultural interests of the Pacific Coast, we commend the PACIFIC RURAL PRESS as the best one within our knowledge for the purpose. Any of our subscribers desiring a specimen copy can have it by application at this office, and in a club with this paper, subscription can be had at reduced rates.—*Independent, Inyo Co.*

PLACERVILLE, Sept. 1, 1871.

MESSRS. DEWEY & Co.—Gentlemen: I am happy to acknowledge the receipt of my Letters Patent for my Self-Generating Gas Burner; and for the manner in which you conducted the case, I will say that it is entirely satisfactory; and I can assure you that I will recommend others to you who have Patents to obtain.

Yours respectfully, C. B. BROWN.

THE San Francisco SCIENTIFIC PRESS of July 29th has a well written communication from Mr. Murray, its agent, giving a truthful description of Golden and its resources. In connection with it is a sectional cut of our coal beds, which is an important accompaniment. The PRESS is an excellent paper, and is doing much in the dissemination of knowledge of our growing west.—*Transcript, Golden, Col.*

IN COLORADO.—Mr. W. H. Murray, special agent and correspondent for the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS of San Francisco, left copies of his journals when he was here, and judging from these numbers, much valuable information regarding irrigation and mining can be obtained by reading them. The interests of California and Colorado are identical, and the people should become more acquainted with each other.—*Greeley Tribune, Colorado.*

Send us Communications.—They will be respected. If you have not time or the experience to write finished articles, send us facts brief and plain. We will take care of them. Remember that writers improve themselves with others by use of the pen. Officers of societies, clubs and meetings, please report.

Volume One of the Pacific Rural Press can be had at this office for \$3. Bound, \$5. A few copies only for sale now.

READERS will favor advertisers by mentioning the information gained from notices in our paper.



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There are many persons not familiar with the value of the Press who would ever after be thankful to our present subscribers for bringing their names on to our list of intelligent readers. Large additions can be made with little effort by the many in this way. We therefore offer (post paid) a premium of one of the patent newspaper file holders (advertised in this paper) for every two new subscriptions received with \$8 advanced payment.

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\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 15 Dearborn street, Chicago, Ill. 23v11-2mbp

LADIES DESIRING TO PURCHASE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v11-2mbp

Opera Glasses, Pebble Spectacles, and Eyeglasses, in great variety, wholesale and retail. C. MULLEN, Optician, 205 Montgomery street, Russ Block, San Francisco. 7v23-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

## Our Printed Mail List.

Subscribers will notice that the figures found on the right of the printed slips, represent the date to which they have paid. For instance, 21v10 shows that our patron has paid his subscription up to the 21st of September, 1870; 4j73, that he has paid to the 4th of January, 1873; 4j73, to the 4th of July, 1873. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction. Please notify us if you are not properly credited within two weeks after paying.

## Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by sending their names in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Retaining a newspaper or blank slip, without the NAME and RESIDENCE of the subscriber is a thoughtless act, and useless both to subscriber and publisher.

THE RURAL PRESS.—We have received in exchange the RURAL PRESS, published by Dewey & Co., San Francisco; also the SCIENTIFIC PRESS. For the former no better paper exists in the State, and the latter is invaluable to the mechanic. They are both most ably edited. We regard the PRESS as one of our best exchanges. —Mendocino Herald, Ukiah, Sept. 30th.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

## Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

## Alameda Coal Mining Company—San

Francisco and Alameda Counties, State of California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 7th day of September, 1871, an assessment of fifty cents per share was levied upon the capital stock of said company, payable immediately. Any stock upon which said assessment shall remain unpaid on the 3d day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 30th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

M. PHILLIPS, Secretary.  
Office, 409 Battery street, San Francisco, Cal. se104w

## Bellevue Mining Company—Location of

works, Ophir District, Placer County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of August, 1871, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately. In United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 3d day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.  
Office, 409 California street, San Francisco, Cal. se24w

## Jeinsen Lubricator Company—San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 1st day of August 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
John Gardner.....	28	50	\$25.00
John Gardner.....	45	75	37.50
James O'Neill.....	46	75	37.50
E. Von Jeinsen.....	38	10	5.00
Wm. J. Campbell.....	32	15	7.50
Wm. J. Campbell.....	33	36	18.00
Wm. J. Campbell.....	31	50	25.00
Wm. J. Campbell.....	31	15	7.50
Wm. J. Campbell.....	35	50	25.00

And in accordance with law, and an order of the Board of Trustees, made on the 1st day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 428 California street, on the 28th day of September 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CALEB T. FAY, Secretary.  
Room No. 7, 428 California street. Sept. 9.

## Mina Rica Mining Company—Location of

works, Auburn District, Placer County, State of California. Notice, there are delinquent upon the following described stock, on account of assessment levied on the 8th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
A. H. Borchert.....	4	500	\$100

And in accordance with law and an order of the Board of Trustees, made on the 8th day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at the office of said company, Room No. 2, No. 418 California street, San Francisco, Cal., on the 3d day of October, 1871, at 1 o'clock P. M. of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of the sale.

GEO. R. SPINNEY, Secretary.  
Office, No. 418 California street, San Francisco, California. se16-3t

## Gold Run Mining Company—Location of

works, Gold Flat District, Nevada County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 5th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at their office, No. 23 Sansome street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 10th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 1st day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. F. PALMER, Secretary.  
Office, 23 Sansome street, San Francisco. se16-3t

## Nevada Land and Mining Company—Lo-

cation of works, Steptoe, Johnson and Latham, Antelope and Clifton Districts, Elko county, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 8) levied on the 25th day of July, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Washington Meeks.....	unissued	2,000	\$80 00
Henry R. Miller.....	unissued	2,000	80 00

And in accordance with law, and an order of the Board of Trustees, made on the 25th day of July, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Wednesday, the 20th day of September, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. se2-3w

## North America Consolidated Mining Com-

pany—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

NOTICE is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 25th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 30th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. aug5td

## POSTPONEMENT.—The day of deeming stock delin-

quent on the above assessment is hereby postponed until Thursday, the 28th day of September, 1871, and the sale thereon, until Wednesday, the 10th day of October, 1871.

By order of the Board of Trustees.

WM. H. WATSON, Secretary.

## Ophir Copper, Silver and Gold Mining

Company—Location of works, Ophir, Placer County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the second day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Brush, R. G.....	246	38	\$ 28 50
Brush, R. G.....	258	62	40 50
Brush, R. G.....	258	37	23 50
Copp, F. P., Trustee.....	310	100	75 00
Copp, F. P., Trustee.....	311	40	30 00
Copp, F. P., Trustee.....	312	40	30 00
Copp, F. P., Trustee.....	313	22	16 50
Copp, F. P., Trustee.....	314	295	221 25
Hathaway, W.....	224	274	205 50
Leahy, J. C.....	256	1	7 50
Lake, Geo. C.....	328	203	152 25
Miller, W. E.....	187	32	24 00
Miller, W. E.....	248	74	55 50
McCurdy, E.....	173	23 1/2	17 62 1/2
McCurdy, John R.....	130	100	75 00
McCurdy, John R.....	132	9 1/2	7 12 1/2
McCurdy, John R.....	132	200	150 00
Miles, Harriet A.....	397	10	7 50
Swain, H. C.....	245	100	75 00
Swain, H. C.....	317	50	37 50
Shaffer, John.....	254	1	7 50
Speyer, Richard.....	309	24 1/2	18 37 1/2
Vigouroux, A. W.....	309	100	75 00
Walker, Jr., John B.....	305	20	15 00

And in accordance with law and an order of the Board of Trustees, made on the 2d day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, on the 25th day of September, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. G. BRUSH, Secretary.  
Office, 314 California street, San Francisco, California. se16-2w

## Quail Hill Mining and Water Company—

Location of works, Quail Hill, Calaveras county, California.

NOTICE is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of August, 1871, an assessment of twenty dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of September, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 16th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.  
Office, 409 California street (up stairs), San Francisco, California. au26-4w

## St. Patrick Gold Mining Company.—Lo-

cation of works, Ophir District, Placer County, Cal.

NOTICE is hereby given, that at a meeting of the Board of Trustees of said company, held on the fourth (4th) day of September, A. D. 1871, an assessment (No. 1) of one dollar per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 9th day of October, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 9th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.  
Office, 409 California street, (up stairs) San Francisco, Cal.

## Piermont Milling and Mining Company—

Location of works, Piermont Mining District, White Pine County, Nevada.

NOTICE is hereby given, that at a meeting of the Board of Trustees of said company, held on the fourth (4th) day of September, A. D. 1871, an assessment (No. 1) of one dollar per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 9th day of October, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 8th day of November, A. D. 1871, to pay the delinquent assessment, together with the costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

## Tecumseh Gold, Silver and Copper Mining

Company. Location of works, Gophor District, Calaveras County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of July, 1871:

Names.	No. Certificate.	No. shares.	Amount.
Louis Hazelquist.....	18	2	\$10 00
Louis Hazelquist.....	27	5	40 00
Henry B. Suhling.....	12	10	50 00
Henry B. Suhling.....	108	5	25 00
A. F. Bily.....	68	5	25 00
Darius Hawland.....	82	2	10 00
Christina Hartmann.....	84	5	25 00
Victor Otten.....	104	5	25 00
Fred Rahmann.....	109	5	25 00
H. Brechtloff.....	76	5	25 00

And in accordance with law, and an order of the Board of Trustees, made on the 28th day of July, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of Maurice Dure & Co., No. 327 Montgomery street, San Francisco, Cal., on Thursday, the 28th day of September, 1871, at the hour of 12 o'clock P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale.

F. J. HERRMANN, Secretary.  
Office, 516 Kearny street, San Francisco, Cal. se2-3t

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Patent Sperm Oil.....\$1 00

Engine Lubricating Oil.....75

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se16-6v



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## HOW TO CURE IT.

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No. 11 " " 5½ lbs.....2.02	No. 27 " " 7 lbs.....2.28
No. 12 " " 6 lbs.....2.04	No. 28 Coal.....2 lbs.....1.12
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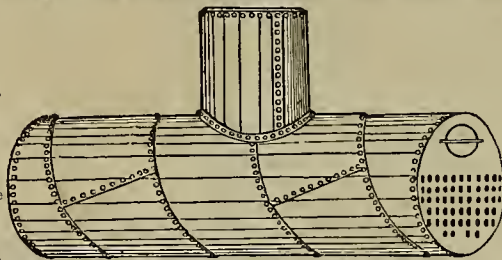
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This Mill is Fully Guaranteed

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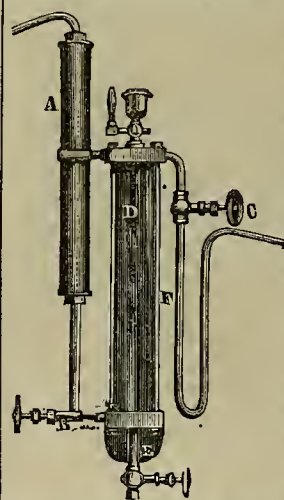
by the cry of "Humbag," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.  
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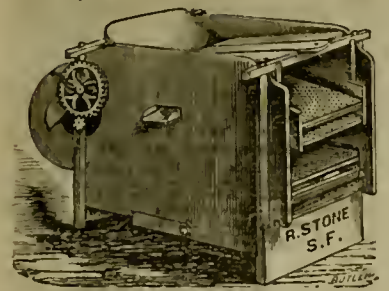
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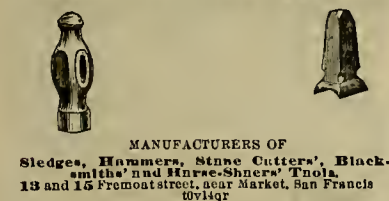
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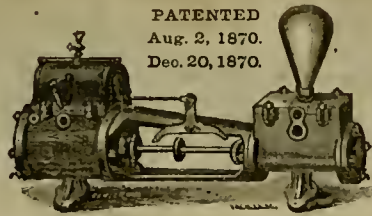
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**THE  
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Corner Howard and Beale Streets,  
Are prepared to make SHEET IRON AND ASPHALTUM  
PIPE, of any size and for any pressure, and contract to  
lay the same where wanted, guaranteeing a perfect  
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All kinds of OAR WHEELS, AXLES and RAILROAD  
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24v22-3m JOSEPH MOORE, Superintendent

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Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—  
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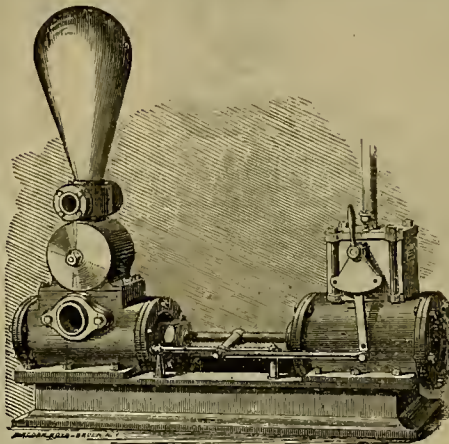
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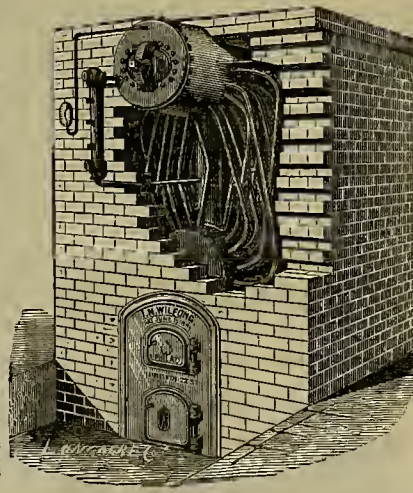
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generation of steam; economy in fuel; durability,  
safety, and simplicity of construction; requires but  
little attention; is easily repaired, and moderate at  
first cost.

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passes down, and to the circumference as before. Thus  
it is constantly passing a regular flow between the grind-  
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reduced to an impalpable powder, and the metal amal-  
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When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and also of the manufactured article itself, must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawings are necessary. In such case, the applicant has only to send us an exact description, and what is desirable to claim.

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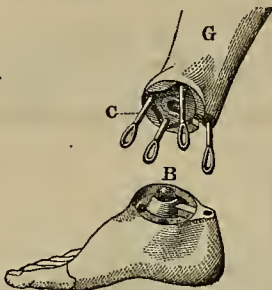
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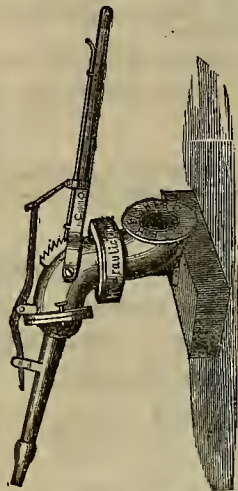
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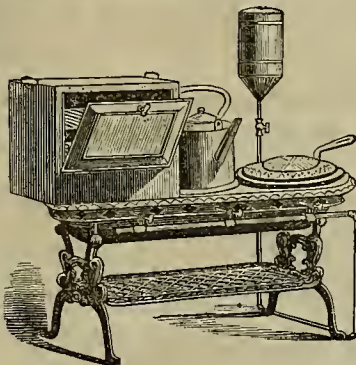


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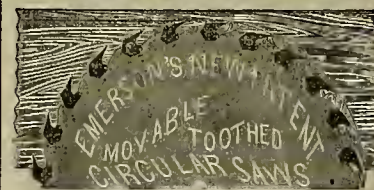
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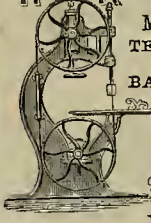
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AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, SEPTEMBER 23, 1871.

VOLUME XXIII.  
Number 12.

## AUTOMATIC STEAM VACUUM PUMP.

Our engraving represents one of the Patent Automatic Steam Vacuum Pumps, manufactured by the Aetna Iron Works of this city. The construction of this pump is simple, and the expensive features of the complicated and heavy low-pressure pumping engine are wanting. It consists of a single hollow cylinder containing no piston or other mechanism. Attached to the top of this cylinder is a steam pipe and small chamber, and to the bottom of said cylinder, valve chambers are affixed, containing plain "flap" valves, opening or closing ports, through which the water is received and discharged in the same manner as in a common pump. These valves by means of light, simple connections, serve to operate all the other moving parts of the apparatus, thus making the pump completely automatic. The receiving, discharging and steam pipes are connected to the cylinder in substantially the same manner as in ordinary pumps.

After setting the pump into position the cylinder is filled with steam and the same instantaneously condensed, thereby forming a vacuum in the cylinder; after this the operation is as follows: water is forced by the atmosphere through the lower receiving pipe, filling the cylinder from below, while at the same time a small quantity of air is admitted through a small opening above the water; immediately the vacuum is supplied, steam is admitted in a thin sheet on the top of the air, compressing the same, and forcing the air and water downward, the latter escaping through the discharge pipe.

There is no condensation of steam by this operation, air being one of the best non-conductors of heat known, and, as it is about twice as heavy as steam, the latter lies upon the top of the air, and this stratum of air acts in all respects like a piston to separate the steam from the water, and yet transmits the pressure, and does it, it will be observed, without friction, waste or condensation.

As soon as the water is forced out of the cylinder, the steam supply is shut off. The steam (remaining in and filling the cylinder) is condensed, a vacuum again created, and the operation repeated; it only requiring a steam pressure of one pound to raise water a distance of thirty feet. The amount of water to be raised in this way depends only upon the size of the apparatus.

The cylinder and valves, and also the slight machinery connected therewith, are of the most durable construction, and the composition of the same is such as to adapt them for all services.

This pump embodies in a simple hollow cylinder, with but few pipes, simple valves and light valve rods, all the important features of the heavy complicated low-pressure engine. Its special merits are economy in fuel; quietness of operation; simplicity of construction, thereby rendering it easy to repair; no packing required, there being no piston; no loss of

power in overcoming friction, there being no intermediate machinery between the power and effect; no damaging effect of sand, salt, or sediments. This was the only pump that received a diploma at the 8th Industrial Fair in San Francisco. For further particulars address Jno. O.

## LOSS OF QUICKSILVER.

EDS. PRESS:—With yourselves, and no doubt many of your readers, I am desirous of obtaining more data as to the loss of quicksilver in our quartz mining operations. That there is a great lack of inter-

that which experience and a little time can give, and when it cannot be a draft on "professional property." The question now is, the *Loss of Quicksilver*. Is the greatest loss in silver mining, per ton of ore worked, or per ounce of silver extracted?

How is it in gold mining? What is the loss per ton by the various modes of working? Now to get at the facts of all this, I make the following proposition to the miners of the several States and Territories; that I will constitute myself a medium for the reception of all statements that parties may desire to forward, and when 25 respond, I will go to work to compile them, make as good an article as possible, and publish the same for the benefit of the mining community, with comments. Parties at the same time they state their loss, should also give the character of ore, as well as chemicals used, whether working gold or silver, pans or plates, working dry or wet, with or without fire. It must be clear to all, that much could be thus gained for each other's enlightenment. I will venture the assertion that there are not ten mill men in either this State or Nevada, who know clearly what should be their legitimate loss, under proper care of their subordinates, from the fact that it has not particularly been a subject of close investigation.

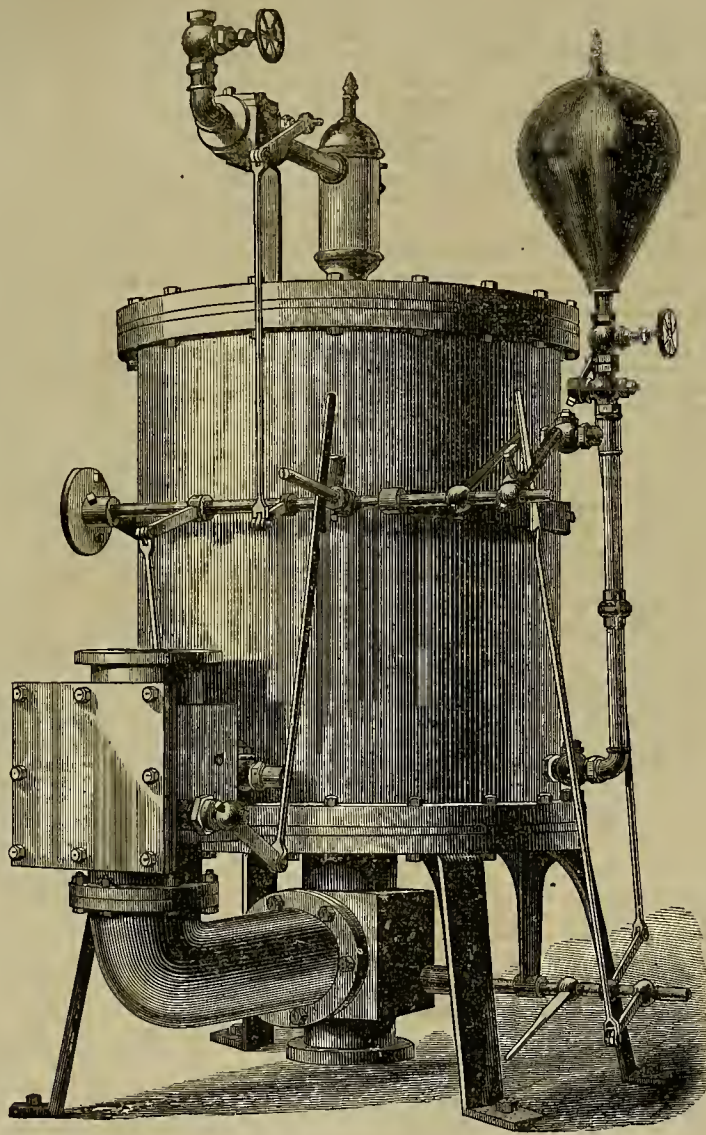
They may know what they lose, but they do not know how much of that loss may be attributed to a lack of skill in the use of chemicals or carelessness, of manipulation.

That the loss can be brought considerably within what it now is, in most mills, I am sure of, and an interchange of ideas can be made "to pay," as that is the sense in which things must be put, in these latter, degenerate days.

There must be a wakening up to the point of more economizing, in all our mining operations or we had better quit mining; for thus far, disguise it as we may, taking into consideration all the capital put into the business, the mills built and ore worked, mining as a business in the past has been a failure, and it all arises from the fact that there is too little care taken in getting the metal out, too much wastage of both the gold and silver, with the quicksilver; for in wasting mercury, more than its value in the precious metals goes with it. Men in manufacturing pursuits "save the piece," but in mining the "pieces" go down stream by millions. In the 21 years that we have been mining on this coast, taking the loss of mercury with the loss of the precious metals, full \$1,050,000,000 have gone to waste!! Are we sensible miners to allow this to continue?

All who choose to respond can address,  
ALMARIN B. PAUL,  
No. 318 Cal. St., Room 1, San Francisco.

**FIRE IN THE MINING TOWNS.**—Fire has been making serious ravages among our mining towns in the interior lately. Last week Pioche City, Nevada, was nearly destroyed and a number of valuable lives lost, and now we are called upon to chronicle a similar calamity in Virginia City. The latter was substantially built, and well provided with apparatus for the extinguishment of fires; but all effort seemed to be unavailable in this instance. A meeting of the citizens of Hamilton, Nev., was held, this week, to make arrangements for the relief of the Pioche sufferers, and over \$1,000 was subscribed. Something should also be done for the burnt-out people of Virginia.



PATENT AUTOMATIC STEAM VACUUM PUMP.

Hanscom Aetna Iron Works. San Francisco, Cal.

**LOW WATER.**—The streams are unusually low all over the State, seriously hindering mining and milling operations almost everywhere. Probably the rivers have never been lower than they now are since the first occupation of California by the people of the United States. The same complaint reaches us from across the Sierras. The streams in Idaho are lower than ever before known. The Boise river, at last accounts, was one foot lower than at this time last year, and was still falling.

THE bean crop on the lower coast is pronounced a failure for this season.

est, or a great amount of carelessness among miners, is evinced from the fact, that no one seems to respond to legitimate enquiries with what might be instructive and valuable answers. I feel conscious of having done my part, to help the mining interest along, by not being particularly tight laced in throwing forth any facts which might be turned to profit by any one, and all certainly would like, as well as yourselves, to see more public spirit among operative mill men. By an exchange of ideas much is to be gained and many errors corrected.

To lock up one's experience is a public injury, especially when the public seeks



## MECHANICAL PROGRESS.

### The Westfield Explosion—Differential Expansion.

Among the mass of testimony submitted during the recent investigation into the causes of the explosion on board the steamer Westfield, none perhaps has attracted more general attention among educated and practical mechanics than the unequal expansion theory, advanced by Mr. Norman Wiard, a gentleman whose ability as a mechanic is well known. The force exerted by unequal expansion is evidently not fully appreciated by mechanics generally; and quite too little attention is paid to this matter in the construction, setting, and management of steam generators. The theory of Mr. W. is not confined to mere speculation; but is founded upon numerous and carefully conducted tests.

According to this theory no boiler is safe, under any practical degree of pressure, unless the conditions of differential expansion are fully recognized and provided for in the construction and management of boilers. To substantiate the truth of this assumption the case of the mysterious explosion of a boiler at Grand Rapids, Michigan, is adduced, which at the time of the explosion contained neither water nor steam, and from which the man-hole plate had been removed; but from under which the fires had not been completely removed.

If any one desires to test this theory and determine approximately the force exerted by differential or unequal expansion, it can be done without the use of a boiler. An old car wheel or pulley will answer the purpose. Place the rim so that cold water may trickle freely upon it, while the flame of a spirit lamp is introduced into the eye. The result will satisfy the most skeptical experimenter, provided he places himself out of the way of the flying fragments which will be violently projected by the explosion which is sure to follow. If the wheel or eye be large, perhaps two or three small flames might be required. Car wheels have been known to burst from this cause, without the aid of water or flame—the catastrophe being sometimes hastened by the slight tap of a hammer on the rim in “trying” them. The frequent bursting of lamp chimneys and globes is another familiar illustration of the force of unequal expansion, occurring sometimes when hanging in their places or snugly laid away upon a shelf; but oftener when subjected to sudden currents of air while heated by the flame of the lamp.

**HAMMERING AND SQUEEZING PUDDLED IRON.**—An Eastern journal says that in several of the iron mills where the Sellers hammer is employed, puddled balls are squeezed by being placed on the anvil and subjected to the powerful pressure of steam admitted above the piston. The squeezing saves much metal which would fly off under the blow of the hammer, or which would be crumbled off in the rotary squeezer. When the ball is compacted by pressure, it is patted and then hammered. To this statement the reply is made that very many practical men claim for the rotary squeezer that puddled iron that is unfit for sale is detected by its use; that the iron would be “crumbled off” by passing through the rotary squeezer, is not fit to reach market through the manipulation of any other machine or process; that the unskillful workman (puddler) is known from the good one, and, that supposing the balls from the puddling furnace to be all of a size when subjected to the squeezer or hammer, and reduced to the same size by either, that the cinder is as thoroughly ejected by the one as it is by the other.

When the rotary squeezer was first introduced, it was urged against it that the iron would not be as good as if reduced by the “solidifying process of the hammer,” but it is now pretty well understood that a small amount of hammering or squeezing preliminary to a much greater amount of rolling, does not much effect any great dif-

ference in the quality of the finished iron. Iron that requires to be “patted” is made from a common stock, or is insufficiently puddled, and to be sure would not stand the test that a rotary squeezer would subject it to. We here speak of iron made for general use; iron of a first class quality for rails frequently passes through the squeezer in a very unsatisfactory manner.

### Art in Metal Work.

We have often remonstrated against the incongruous character of our metal work. Here there is a comparatively untrodden path of art. Cast and wrought iron work are extensively employed in building. These are as capable of artistic treatment as the brick or stone building with which they are incorporated. Generally, however, they are either covered up, or else made in the forms of stone architectural features, as though metal were something to be ashamed of; as though it had no properties that did not suggest life and beauty in artistic design, allowing the metal to appear, and making its use, strength and appearance forcible; marking and emphasizing it in the building; and, instead of hiding it, or making it appear like some other material, giving it a definite design and character of its own. Thus, by its force and contrast, it would very greatly add to the effect of the building where it was employed. There is no exception in the case. All kinds of purposes for which metal is used in buildings might be marked and emphasized by artistic treatment. How much less of sameness and tameness would there be if this were done, and how much greater would be the artistic feeling and force so very desirable. There is a great scope here, and until more is done in this department there is something wanting.

The employment of zinc for external cornices and canopies is coming into vogue. Setting aside the question of durability, why is it not possible to treat the material artistically as metal? What is the necessity of making it appear like stone? Even with a design resembling the treatment of stone, it looks far better with its glossy, natural color, as metal, than when smeared and deadened with paint not at all in accordance with its nature.—*American Builder.*

**TREATMENT OF STEEL.**—Mr. Howell, in the *Journal of the Society of Arts*, says that steel plates, especially such as are intended for ship building should as soon as possible after their manufacture, be submerged in boiling linseed oil. Plates thus coated have been found after three years' exposure to the weather, to exhibit not the slightest tendency to corrosion, though subjected to alternate wet and dry. Mr. H. considers that the life of the plates will be lengthened greatly by this process, and that the plates will take paint much better for it. It is most important, too, that destructive oxidation should be avoided as much as possible. The newly formed oxide arising from the heat of the furnace does not decay until exposed. The oxide formed on steel plates in the fire is much more tenacious than that formed on iron, and forms more completely part of the plate, being very difficult of removal.

Another point of importance urged by Mr. Howell, which, however, is generally acknowledged, is the desirability of having the drill used instead of the punch in perforating the rivet holes in steel plates.

**THE MANUFACTURE OF CHINESE GONGS.**—The secret of the manufacture of Chinese gongs is said to have been recently discovered by M. M. Julian and Champion, who have found that bronze which is brittle at ordinary temperature becomes malleable at a dull red heat. The makers of bronze implements of ante-historic times, were evidently aware of this fact, as also were no doubt the manufacturers of the bronze lamps, etc., found in Pompeii and other buried Italian cities. Some experiments have been made at the Paris mint with the view of determining the conditions most favorable to working such alloys, and it has been found that a bronze containing 20 per cent. of tin, which is as brittle as glass at an ordinary temperature, may, at a dull red heat, be forged and beaten out as readily as soft iron.

**ANGLE STEEL.**—not angle iron,—is a new article of manufacture, designed to take the place of angle iron in the construction of safes. Its advantages for the purpose, over iron, is apparent.

## SCIENTIFIC PROGRESS.

**RUST.**—It is well known that when iron is exposed to the action of pure dry oxygen, no oxidation or rusting occurs. It is commonly supposed that moisture is the essential condition to the oxidation of iron; but a series of carefully-conducted experiments have shown that iron is but slightly oxidized in pure moist oxygen, but if to this is added a trace of carbonic acid, the oxidation takes place rapidly. The experiments alluded to substantiate the interesting fact that carbonic acid is the real promoter of oxidation. Long ago, Berzelius, and other chemists observed that caustic alkali prevents the oxidation of iron. It is now established that carbonates and bicarbonates possess the same properties as their hydrates. If an iron blade is half immersed in a solution of an alkaline carbonate, it exerts such a preservative influence on that part of the bar which is exposed to an atmosphere of common air, which always contains carbonic acid, that it does not oxidize after a period of two years. Similar results were obtained with sea-water to which had been added carbonates of potash and soda.

**THE EMPLOYMENT OF INDIGO.**—Until within a few years indigo was thought to be insoluble in almost all reagents which did not decompose it; but the increasing extent of its employment rendered the discovery of new solvents a matter of much moment. Recent researches, in efforts to meet this want, have disclosed several new agents in which it can be dissolved, and from which solutions it crystallizes on cooling. The *Chemical News* says that hot aniline dissolves indigo, forming a solution from which, on cooling, the indigo crystallizes in beautiful coppery spangles. Venetian turpentine, also, heated to its incipient boiling point, is a solvent for indigo, which, after cooling is readily purified by the aid of ether or alcohol. Boiling paraffine also dissolves indigo, and can be readily removed after cooling, by means of benzole. Spermacetti, stannic acid, chloroform and petroleum are also said to be more or less perfect solvents for indigo.

**A NEWLY INVENTED RAIL.**—Letters-patent have been taken out for a new rail for railroads, which promises to do away with the continual rattle and jar of railroad travel. It is a continuous T rail for which the inventor and those who have examined it claim important advantages over any rail now in use. The rail is in two sections, the upper section lapping over the lower and fastened there by horizontal bolts. Between the sections is india rubber packing, five-eighths of an inch in thickness. It is thought the use of this rail will prove important in many respects and be much cheaper in the end than those now in use. The upper section may be made either of iron or steel, and when worn out can be laid without disturbing the under section.

A great expense will thus be saved in relaying the track. The india rubber packing will give the car an easy and almost noiseless motion, and prevent the sharp concussions which so frequently result in the breaking of the axles. The saving to rolling stock will be an item of very great importance, and will commend the use of the improvement to all companies that study economy as well as safety.

**COLORS ELECTRIC LIGHTS.**—M. E. Becquerel has shown that the electric spark may be diversely and beautifully colored by being made to pass through saline solutions. If an electrical spark from an inductive apparatus be made to pass into the extremity of a platinum wire suspended over the surface of a solution of a salt, this spark will acquire special coloration according to the chemical composition of the solution traversed. The saline solutions are best concentrated, and the platinum wire positive. The experiment is readily performed in a glass tube. Salts of strontia will color the spark red; chloride of sodium, yellow; chloride of copper bluish green, etc. The light from these sparks, analyzed by the spectroscopic, furnishes a method for the determination of the nature of the salts contained in the solution.

**PSYCHIC FORCE.**—Mr. Coleman Sellers, of Philadelphia, well known as an able mechanical engineer, and who is also an amateur prestidigitator of unusual skill, in a brief article in the *Franklin Journal*, throws considerable doubt over the genuineness of the manifestations of “Psychic force,” lately announced by Dr. Crookes, and supported by Mr. Huggins, and others.

Mr. S. thinks the condition for excluding the possibility of facilities for sleight-of-hand, and other related descriptions, were not so thorough as they should have been.

He compares the floating accordeon to the acknowledged trick of Hermann's floating wand; and suggests the possibility of ventriloquism to account for the music.

He thinks the statement that the strip of “mahogany board, 36 inches long by 9½ inches wide and one inch thick,” with three pounds suspended in the balance and (by assumption) three (an equal weight) on the table, making a total weight of only 6 pounds, rather a loose report, when the books and practical experience show that such a board ought to weigh about 13½ pounds. Such an apparent mistake he thinks must detract from the general reliability of the entire series of experiments.

**ORIGIN OF GRAPHITE.**—Prof. Wagner ascribes the deposits of graphite, plumbago, or black lead, which are found in a great variety of rocks of different geological periods, to the decomposition of cyanogen, which is a combination of carbon and nitrogen, or of the cyanides. In several chemical processes, used in the arts, graphite is formed artificially; and it is not impossible that this extensive mineral, the best specimens of which are now brought from the island of Ceylon, may be produced artificially in such quantities as to be made available in several branches of manufactures where this mineral is indispensable. Chemists, however, have not yet accepted Prof. Wagner's explanation, or any other, as to the natural production of graphite.

**DEATH BY DROWNING AND COLD.**—Dr. Richardson has shown, amongst other experiments, that fish that would be presumed to be dead from what he called “glacial death,” were easily recoverable. Death from drowning under ice is one of the most rapid of deaths, and is completed with so quick an extinction of consciousness as to be actually painless. The heart retains its power of action, the blood remains fluid, and the muscles keep up their irritability for a long time after apparent dissolution; and so favorable are all the conditions for renewal of living action, even for two hours, that a considerable advance in the practice of resuscitation must follow upon further careful and laborious experimental research.—*Lancet.*

**A NEW LIGHT.**—Dr. Harcourt, of Paris, proposes a new system of illumination. He reduces ordinary illuminating gas by admixture with a certain proportion of atmospheric air and then brings up its illuminating power by allowing the flame to impinge upon platinum-sponge. The result is said to be an increased light with less expense.

**THE SUN SPOTS.**—Prof. Daniel Kirkwood has determined, as he thinks, that the period of the sun-spot cycle is gradually lengthened—it being a variable and not a constant figure; and he draws from this fact the conclusion that the cause of this phenomenon is not to be sought in the influence of the planetary bodies, for this influence, being constant, would preclude any variation in its effects; but it must be sought in some purely physical cause operating upon the sun's body.

**ANOTHER SIMPLE TEST FOR STEEL AND IRON.**—Mr. H. A. Walker, of Tarboro', N. C., proposes that the scintillation of iron and steel filings, when put in a fire, be made of use to test the quality of the metal. The different degrees of brilliancy, as well as the readiness with which the filings sparkle in the fire, are suggested by Mr. Walker as proofs of the varying purity of the iron or other metal. The test is handy and convenient, and might be of practical value.



# CORRESPONDENCE.

## EAST CANON, OPHIR DISTRICT, U. T.

BY OUR OWN TRAVELLER.

[Continued.]

EDS. PRESS:—Near the city of Ophir the different smelting works are all in operation day and night, and the business is a thriving one. The furnaces of Schofield, Abbey, Drake & Co., known as the East Canon Smelting Works have been running since the 10th of July, and reduce about 10 tons of ore per day. The owners are new to the business but have been successful thus far.

The Brevoort Milling Co., at the lower end of East Canon, has a steam stamp mill, patented by J. W. Forbes of La Porte, Ind., which cost \$2,500 in the East. It is known as the "Automatic Steam Battery," and the mortar is oval in shape, discharging from a No. 40 screen, on all sides. There are two stamps, the stems of which are 6½ feet high, and 65 pounds of steam are required to run them. They use two engines, one of 10- and one of 30-horse power. This mill is run on the same principle as Wilson's stamp mill, so well-known on this coast, the stamp-stem acting as pistons to two vertical cylinders, so that the force of the steam is thrown directly on the stamp. This company also have five improved Varney pans, and one Farnham & Warren patent pulp grinder, with a capacity, it is said, of one ton an hour. The grinder is 30 inches high and three feet in diameter, grinding the pulp three times over, and then discharging it into the amalgamating pans. This is a new enterprise and I shall notice the results with interest, as anything that will reduce the price of milling is of benefit to my particular friends, the miners. A short distance from the cañon is the first quartz mill of any size that was ever erected in Utah. It is known as the

Walker Bros. Mill,

and is under the superintendence of Mr. L. Dunn, a well-known and practical Nevada mill-man. They use 15 stamps, weighing 650 lbs. each, crush day, and have a 75-horse power engine, 2 boilers, each 16x48 inches in diameter, fitted with steam and mud drums, and six pans and three settlers of Varney's improved patent. The pans are four feet eight inches in diameter at the bottom and 26 inches deep, and the millers are the same as in the old Varney pan—a space of four inches being left between them and the staves or wooden sides. The pulp is discharged from both sides of the battery into cars which convey it to the pans. One of Blake's patent rock breakers is also in use, which is calculated to crush 25 tons in 24 hours. On the road near the mill is a large Fairbanks' scale for weighing ore. After passing here the team is driven into the upper story of the ore house, and its load discharged into the basement below, which is five feet above the dry kiln, where the ore is dried preparatory to crushing.

The machinery was all built by Preece & Scherrell, of Marysville, Cal., and shows good workmanship. It is first class, having all the late improvements, and cost, without transportation, \$13,000 in gold. Mr. W. H. Allen, of California, superintended the putting up of the machinery about the engine and pan-room. The millwright was Mr. Jas. White, well-known on the Pacific coast. The dimensions of the building are: battery-room 40x40; pan-room 24x40; engine-room 40x26; retort-room 14x24; and ore-house 40x40. The battery-room is 22 feet high. The mill generally is first class and finely fitted up, having cost \$40,000. It is considered that the dry is much better than the wet process for crushing these base metal ores. There are a few arrastras being worked in the cañon; one owned by J. D. Lomax is run by a water-wheel 18 feet in diameter. He uses also a Wheeler pan for amalgamation. A short distance from Walker Bros. mill, I met an old "White Piner," Mr. G. M. Garrieh, and through his kindness I was enabled to go through the works of the

Ophir Mining and Smelting Co.,

owned by Col. Weightman & Co. There is

one furnace in operation, and a new one is being built. The former is 14 feet from the top to feed hole; 30 inches in diameter at top, 40 in the middle, and 30 at the bottom. They have a 16-horse power engine and a No. 7 Sturtevant blower. About two tons of bullion are made a day; which they inform me is free from dross and very pure. There are three tweers to this furnace. The fire bricks are made of proper shape and are 8 inches thick. It takes twelve to go around the furnaces. Mr. Garrish is a practical man in this line of business and deserves great credit for the successful manner in which he has carried it on.

### Formation of the District.

All or nearly all of the mineral is found in what is generally known among miners as blue line, interlaced with, and containing deposits of white and black calc spar, which is found in the greatest abundance in the vicinity of the chloride deposits. The black spar invariably accompanies the chlorides, and is looked upon by the miners of Lion and Silver Hill as an unfailing sign of their being near at hand. On the base range there is a stratum of red quartzite about 100 feet thick, covered by a heavy body of dolomite shale, which is again covered by the blue lime, extending to the summit of the range. With the exception of this belt of quartzite, etc., the country rock of the district is limestone, stratified, and although several promising veins of ore exist in regular walls, well defined, and having a vertical position, the mines generally occur in strata having the same position as the rock in which they are found.

### Camp Floyd District

joins Ophir on the South and is about six miles distant. The ores are nearly all free, some of the chloride ledges being very extensive and producing large quantities of high grade ore. The Sparrow Hawk and Mormon Chief are the prominent mines in the district, and are attracting considerable attention. A deposit of cinnabar has also been discovered, and specimens have been found running as high as 30 per cent. The mines are being rapidly developed, and a mill will probably be running here shortly. The country rock is the same as that in Ophir, running into a slate or shale to the south as the hills decrease towards the valley.

### American Fork District.

The Miller is the representative mine here, and is doing well. At Forest City there are some furnaces in operation and more are being erected. Timber is plenty, and as a consequence charcoal for smelting purposes is cheap. The ores are of the same character as those in Tintic, the geological formation being the same. Throughout the district times are lively and a large number of men are at work at fair wages. Leaving here we travel a short distance to

### Stockton City,

which is a thriving little place in Tooele county, the same as Ophir district. A hotel is being built here and the place is otherwise improving.

The mines are located about one mile from the city, in the low foothills, and the principal ones are the St. Patrick, Grand Cross, Quandary Lode, and Metropolitan. I rode out in company with Messrs. Murphy & Chase, prominent men in the district, to visit the above ledges. In 1864 the 2d Cal. cavalry under Gen. Connor was stationed about a mile from here, and some of the soldiery while prospecting, discovered quartz croppings and made a few locations. They also built some small smelting works, but were unsuccessful in their endeavors. The district is called Rush Valley. The first mine we saw was the

### Grand Cross,

located in 1870. The tunnel running north is in 75 feet and then they follow the ledge by an incline of 20 feet in length. The average width of the lode is three feet, running east and west, with a dip of 45 degrees. The ore is red oxide and galena. The vein, between lime rock and porphyry formation, belongs to Pexton & Sone. The

### St. Patrick

is the representative mine of the district. It is situated on Mineral Hill and was located in March, 1871. There two shafts 200 feet apart, respectively 60 and 70 feet deep. The ledge runs east and west, dips 80 degrees, and averages five feet in width. A force of ten men are extracting ore for the smelting works in the district. The general character of the ore is galena and carbonate of lead, and will assay on the average 63 per cent. lead and \$38 per ton silver. They are taking out five tons

daily, and intend running a tunnel to tap the ledge at a depth of 130 feet. The

### Quandary Lode,

is located in Silver Cañon and belongs to E. C. Chase and others. The shaft is 107 feet deep, and two drifts have been run respectively 20 and 12 feet in length. There are now 25 tons of smelting ore on the dump. The foot wall is lime-rock and the hanging wall porphyry. The first class ore assays 52 per cent. lead and \$30 in silver. It is principally chlorides and gray carbouate. Near by is the

### Great Basin Tunnel,

owned by Gen. Connor. They have run in 80 feet, but are not working at present.

### The Muscatine Lode,

owned by Anderson & Co., is 3 feet wide. The incline is down 30 feet. The

### Metropolitan

ore averages \$40 per ton in silver and 63 per cent. lead. In the first 15 feet the rock yielded \$35, in the next 35 feet it yielded \$65, and when 100 feet down it paid \$80 per ton. The

### Silver King Mine,

owned by Gen. Connor, has a shaft down 240 feet. The ore will yield 60 per cent. lead, and \$40 per ton in silver. The

### Tucson Lode,

owned by Barry & Pardee has a shaft 50 feet deep on a vein 2½ feet wide.

### Waterman's Smelting Works,

are situated about one mile from Stockton City, near the end of the Lake, and are owned by Mr. H. Simone of Philadelphia. These works, erected in May, 1871, have been treating ore from Rush District very successfully. They have a large round furnace for roasting ore before smelting, 12 feet wide at top and 6 feet at bottom. The charges remain in from 3 to 6 days which greatly facilitates the process of smelting. A Gates patent crusher (of Chicago,) is used for breaking ore before putting it into the furnace. The lining of the furnace, which is from 30 to 40 inches in diameter, is made of stone found here, and stands the heat well; all the necessary materials for fluxing are to be found in the vicinity. Nearly 8 tons of ore are smelted daily at these works. The bullion is sent to Omaha and Chicago; but the proprietor says that he would prefer to ship to San Francisco, if satisfactory arrangements could be made with parties in that place. The owner of these works is building another furnace near by, which will be ready shortly. W. H. M.

[Our correspondent has sent us a map of this section of country; but, being incomplete, its publication would be injudicious.]

## Grape Growers' Association of Sonoma, Napa, and Solano Counties.

Pursuant to adjournment, the Association met in Napa city, on Saturday, Sept. 9th, 1871, the President, Maj. Jacob R. Snyder in the Chair.

Present from Sonoma county: O. W. Craig, J. Dressel, Leonard Goss, A. F. Harazthy, J. R. Snyder, A. S. Edwards; from Napa county: G. Backus, Chas. King, J. A. Lockwood, W. W. Lyonau, G. Meliavacca, W. McClure, D. K. Rule, J. J. Siegrist, J. York; from Solano county: H. T. Barker, F. Miester, W. Miester.

The annual election of officers resulted in the following choice: President: J. R. Snyder, of Sonoma; Vice-Presidents: Wm. McP. Hill, of Sonoma, E. D. Keyes, of Napa, and W. Miester, of Solano; Secretary: J. A. Lockwood, of Napa; Treasurer: O. W. Craig, of Sonoma.

Reports from committees being in order, Dr. Rule from a Special Committee on Game Laws, reported a memorial to the Legislature praying for such a modification of those laws, as would withdraw the protection they afford to quail frequenting vineyards.

The report elicited a discussion in which Messrs. Dressel, Craig, Rule and others participated. It was affirmed that the quail and linnet are the most destructive birds to the grape—although grapes are not found in the craw of quail, because they reject the seed and skins. Their depredations cost the grape grower more than the feed of their domestic fowls. The reputation of other birds—bluejay, lark, blackbird, etc., was vindicated. Report accepted.

The Committee on Statistics appealed

for assistance to prepare returns of present vintage.

Mr. King moved the committee be authorized to have printed such forms as may be required.

Mr. Miester objected to the publication of returns that might prejudice the interest of the proprietors.

Mr. Barker opposed the views of Mr. Miester.

Mr. McClure considered that general results need only to be published.

Mr. Goss, in order to remove the objection to giving full returns, moved that the forms should express on their faces that the wishes of grape growers to keep private any information they might give, not intended for the public, should be rejected.

Amendment accepted, and motion carried. Mr. Craig moved that the resolution offered by Dr. Lockwood at the last meeting, respecting coopers and dealers in casks, be adopted, and that the Secretary open a record in the journal, for members to register their purchases of casks, the quality, etc., and that it be the duty of each member to make such records. Carried.

Dr. Rule moved that no cooper be censured on the books of this Association, without a special committee being appointed to investigate the complaint. Carried.

Mr. Harazthy moved that the wages paid to Chinese labor be classified according to their skill, and be made uniform. He would propose one dollar a day for teamsters and cellar-men, and eighty cents for unskilled hands, as pickers.

Mr. Siegrist preferred paying pickers by the job.

Mr. Dressel thought Chinese would not consent to pick by the ton; although, it would be to the advantage of the employer, if they would.

Dr. Rule said a Chinaman would pick one ton a day—a German trained in a European vineyard, would pick from two to three tons.

Mr. Harazthy, who had ample experience in Chinese labor, said their average pick was 1500 lbs. a day; but if Americans and Germans were with them in the gang, to hurry up work, their ordinary pick was a ton each.

Mr. Miester had found a Chinaman would pick one ton—Americans and Germans a ton and a half.

Mr. York had picked ten tons a day with five white men.

Dr. Rule was opposed to fixing a uniform rate for paying labor. He deprecated the principle of laborers' leagues who demanded a certain sum, without regard to the value of their services rendered. He preferred to pay good men high wages, and to kick out the worthless.

Mr. Craig did not believe that vineyardists would be bound by any scale we might fix, and if they did, they would be the sufferers, as he had experienced a year ago.

Mr. Goss, forcibly opposed, at some length, the principle of laborers' leagues involved in this movement. He had been an employee 30 years, and had found all such projects inefficient except for mischief.

Mr. Harazthy had called up the subject at the instance of a local society; but as it seemed to meet no favor with the Association, he withdrew it.

The President asked the attention of the Association to the subject of "Fence laws," and called for the reading of a statistical article he held in his hands. Being read, and briefly discussed, the subject was referred to a committee, to report at the next meeting. Messrs. King, Lockwood and Rule were appointed.

Messrs. E. P. Cutter, A. Gotzchalk and A. Kitz, were admitted as members.

On motion, Association adjourned to meet at Napa city, Saturday, November 11th, 1871. J. A. Lockwood, Sec'y.

THE PHILOSOPHY OF FEEDING.—All the profit in feeding animals, remarks Joseph Harris in *Health and Home*, comes from the food eaten over and above what is needed to sustain the vital functions. With a poor quality of hay a cow is not unfrequently kept through the winter without gaining a pound or giving any milk. She can only eat enough of this nutritious food to sustain the vital functions. But furnish her daily with four quarts of corn meal, and she will either give considerable milk, or, if dry, gain in flesh and fat, and next summer this accumulated flesh and fat will find its way to the milk-pail, and be converted into cheese and butter.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### CALAVERAS COUNTY.

**MINE SOLD.**—Calaveras *Chronicle*, Sept. 16: The Stickles mine, at Angels, has been sold to a S. F. Co. for \$25,000. The shaft in the "Big Mine" is nearly 500 feet in depth.

**GOOD CLEAN UP.**—Champion & Co., engaged in mining in Corral Flat, cleaned up over \$500, the claim averaging nearly \$6 per day to the hand.

**FORT MOUNTAIN.**—Cor. Calaveras *Citizen*, Sept. 16: The Petticoat Mine is now clear of water, and work will be commenced immediately.

In the Wolverine Mine a new shaft was started two months ago, and has been going down rapidly ever since. Good rock has been struck of late in the shaft.

Of Prussian Hill ore over 100 tons are in Randolph's mill, at Railroad Flat, waiting to be crushed, and as much more is yet to come in. The vein is of good size and easily worked.

Mines lying idle are the Lewis Bros., Champion, Invincible, Buckeye, Gopher, Chapman, Pinto, Mary Ann, Pioneer and Sandeumyer & Co.

### EL DORADO COUNTY.

**INDEPENDENCE MINE.**—Mountain *Messenger*, Sept. 50: The sale of this mine has been completed for \$300,000.

**GOOD PAY.**—J. Keuder's claims on Good-year's Creek are now paying from an ounce to \$40 per day to the pick.

### FRESNO COUNTY.

**QUARTZ MINING.**—Millerton *Expositor*, Sept. 15: C. M. Bennett & Co., were to have started up their mill on Monday last. Their mine is situated about 15 miles north of Millerton and south of the San Joaquin, immediately under Table Mt. They are down about 75 feet and have some 50 tons of ore on hand ready for crushing, which will pay from \$10 to \$50 per ton. The mill is run by steam power and has 4 stamps.

### LOS ANGELES COUNTY.

**BULLION.**—Los Angeles *News*, Sept. 16: 200 bars bullion were received yesterday, from the Union Works, Cerro Gordo. The aggregate weight was 16,992 pounds.

### MARIPOSA COUNTY.

**STARTED UP.**—Mariposa *Gazette*, Sept. 15: Wilcox & Catron's quartz mill on Buckeye resumed operations on Wednesday. They have 60 tons of rock to crush, which will average \$70 per ton.

**RICH STRIKE.**—The "John Snow mine," at Sebastopol is still yielding handsomely. The proprietors struck a pocket last Friday from which they realized near \$1,100.

### NEVADA COUNTY.

**LOCATION.**—Nevada *Gazette*, Sept. 15th: Wm. Eddy and others have located 800 ft. on the Coyote ledge, a gold bearing Quartz ledge situated on Coyote Hill about three-quarters of a mile west of the Court house, for mining purposes.

**NEW YORK HILL MINE.**—Grass Valley *Union*, Sept. 17th: A clean up of 19 loads of rock has been made within a day or two at the Gold Hill mill, and the result was 34 ozs. of gold. This gives about \$560 for the 19 loads.

**GOLD TUNNEL MINE.**—This mine, near Nevada city, the first quartz mine in this county worked, and which has been in idleness for many years is again being put shape for working. The tunnels, shafts and such things are being repaired.

### PLACER COUNTY.

**TERIBLY DRY.**—Auburn *Herald*, Sept. 16th:—More than 1,000 tons of rich ore are now awaiting crushing, but the mills are powerless for the want of water.

### PLUMAS COUNTY.

**BY TELEGRAPH.** Sept. 19th: The hoisting works of the Indian Valley M. Co. were burned to-day, at Greenville. The fire extended down the shaft to the third level. The loss is estimated at \$50,000.

### SAN DIEGO COUNTY.

**BULLION.**—There was shipped on Sunday, bullion amounting to \$1,900, principally from the Stonewall mine.

**ITEMS FROM THE MINES.**—The McMechan mill is crushing Golden Chariot ore which looks well. Gunn, Reynolds & Co.'s mill is pounding away on Helvetia day and night. DeFree's mill is also working the same ore. The Stonewall mill has been running six hours a day, having only water enough to keep the machinery going for that time.

The rock averages \$30 per ton, and the mill averages \$20 per hour during the time.

### SOLANO COUNTY.

**FURNACES COMPLETED.**—Vallejo *Chronicle* Sept. 17th: The furnaces for reducing cinabar at the Vallejo Quicksilver mines are completed, and the reduction of ore was commenced yesterday.

### TRINITY COUNTY.

**SILVER LEAD FOUND.**—Weaverville *Journal*, Sept. 16th: Jessop and Ralph have discovered a silver lode in their mining claim near Lowden's bridge. The vein is about 3 feet wide where they struck it, and a small piece of ore assayed \$13.20 to the ton in silver.

**STRUCK IT BIG.**—The Arcade Co. working on Cañon Creek, struck it big last week; 2½ days washing with 4 men paid \$54 to the hand per day.

### YUBA COUNTY.

**BIG CLEAN UP.**—G. V. *Union*, Sept. 16th: The Blue Point Gravel Co. of Smartsville made a big clean up the other day, realizing \$71,000 for a month's run. The Blue Point mine is just beginning to be opened and in a fair way to work.

## Nevada.

### EUREKA DISTRICT.

**CONSOLIDATED CO.**—Eureka *Sentinel*, Sept. 14th: The Co. continues to turn out a large amount of bullion of good quality.

**ROSLIN WORKS.**—The furnace belonging to this Co., is in full blast, and turning out as much hullion and of rich quality as any furnace in Eureka.

**RICHMOND CO.**—Work is being rapidly pushed forward on the two new furnaces; from the 1st day of Sept. until the 11th inst., there has been produced 80 tons of bullion of an average value of \$235 in silver and \$90 in lead, or a total of \$325 per ton, making the gross value \$28,000. This is a product of \$2,800 per day from one furnace.

**CHAMPION.**—This mine, in the Diamond range, has been bonded for a round sum.

**SECRET CANON.**—It is thought that the parties who have bonded the Geddes & Bertrand property will purchase the same.

### ELY DISTRICT.

**BULLION SHIPPED.**—Ely *Record*, Sept. 10th: W. F. & Co., shipped since Thursday last, 22 bars of bullion valued at \$64,795.77, and (same paper Sept. 14th:) since Sunday 21 bars valued at \$26,893.78.

**BULLION ASSAYED.**—John Cahill assayed for the Raymond & Ely Co., for the week ending yesterday, 13 bars of bullion valued at \$41,018.11.

### HUMBOLDT.

**BULLION SHIPMENT.**—Unionville *Silver State* Sept. 16th: The amount shipped from the Arizons mine, since our last issue, was \$5,360.

**SANTA CLARA CANON.**—A fine vein of good milling ore has recently been struck, name of mine unknown.

**A RICH STRIKE.**—The Eclipse M. Co., have been engaged driving a tunnel for some months past, and a few days since reached the ledge, from which ore of a high grade is being extracted. Three feet of the vein has been taken out, with no signs of the upper wall. The tunnel is 240 ft. in length, and from where they cut the ledge, 125 ft. to the surface.

### REESE RIVER.

**BULLION.**—18 bars of bullion, weighing in the aggregate 1,716 lbs were run at the Manhattan mill yesterday; and nearly every day for the last week, 4,000 to 4,500 lbs of amalgam have been retored.

**GOOD YIELD.**—The last 104 tons of ore taken from the Monitor Mine at Belmont, and worked at the Manhattan mill, yielded upwards of \$54,000.

**ORE FROM THE MONITOR MINE.**—The following is the result of 70½ tons of rock worked within the last few days at the Manhattan mill, from the Monitor mine, Belmont. 24 tons pulp assay per ton, \$936.31 produced \$19,166.77; 8½ tons, assay \$425.34 produced \$3,126.26; 5½ tons, assay \$246.73, produced \$1,125.68; 3¼ tons, assay \$301.08, produced \$7,864.23; 3½ tons, assay \$1,025.79, produced \$3,011.70; average production per ton \$484. Total production of 70½ tons, \$34,297.64.

### WASHOE.

**SAVAGE.**—Gold Hill *News*, Sept. 16th: More Ore is extracted than can be milled; it accumulates in the dumps. Hoisting through the new incline, below the tenth level; will commence soon.

**CROWN POINT.**—The ore breasts at the lower levels continue yielding well, especially at the 900 ft. level. Winzes for air connections are being made between the three lowest levels.

**AMOUNTS.**—The regular monthly dividend disbursed by the Crown Point on last Saturday amounted to \$120,000 and that of the Chollar-Potosi to \$28,000. The August receipts of the Hale & Norcross amounted to \$46,500.

**OVERMAN.**—The hoisting machinery for use at the new Overman shaft, will be completed by the last of this week.

**MINING ACCIDENT.**—A miner in the Yellow Jacket had one of his fingers broken, besides sustaining other bruises and contusions yesterday, by an accidental fall of about 7 ft. in the mine.

**QUINN MINE.**—Virginia *Enterprise*, Sept. 16th: A shaft is down upon the lead to the depth of 50 ft. In the bottom the ledge is four ft. wide and the ore averages over \$200.

The Segregated Belcher M. Co. are making preparations for sinking a new shaft 500 ft. further east than the one at present in use, in hopes of finding the continuation of the rich deposit of ore now being worked by the Crown Point and Belcher Co. on their 1,100 ft. levels.

**ORE YIELDS.**—Last week there was extracted from the Chollar-Potosi 631 tons of ore assaying \$45.22 per ton. The Hale and Norcross yielded 330 tons and the Savage 550 tons, the latter assaying \$33.70 per ton.

The Caledonia Co. yesterday began breasting out and hoisting ore from their 400 ft. level.

**ACCIDENT.**—Pryor, an old miner at the Yellow Jacket, yesterday fell the distance of one set of timbers and was severely injured.

**ANOTHER ACCIDENT.**—A Mexican working at the Ophir mine had his right hand mashed yesterday by a rock falling down the shaft and striking it while it was resting on a car.

The Ione mill, on Gold Cañon, near Devil's Gate, day before yesterday started up on ore from the Caledonia mine. This mine is also supplying two other mills with ore—the Gold Hill Quartz and the Sapphire mill.

**SUTRO TUNNEL.** was yesterday in a distance of 2,421 feet.

**NORTHERN COMSTOCK MINES.**—The Ophir and Consolidated Virginia are now at work to test the lead in two different ways. The Ophir folks have their main shaft down over 1,000 ft, and will put it down to 1,300 before drifting. The Consolidated Virginia are at work at a middle depth, yet with several hundred feet of unexplored ground above them. From their shaft on North F street they have run a main west drift to and through the lode, and from this they have drifted north and south in the vein matter for a considerable distance. From this drift running northward (they have for the present discontinued work on the drift to the southward) they are now raising two shafts. The most northerly of these shafts is within 100 ft of their north line, and the other is 100 ft south or 200 ft. from the line. In the shafts now being raised they are meeting with occasional holders of good ore (assaying from \$40 to \$80) in a species of quartz cement.

**SOUTH CAMP MINES.**—Cor. same: Situated about 12 miles from Shellbrun, on what is known as Ruby Hill. The first location made was the Cow and Calf, sometime in last July, also the "Rattler." The Cow and Calf consists of an immense reef, or ledge of quartz, inclosed in limestone, the quartz carrying mineral throughout, some of it being very rich. The character of the ore is black sulphuret of the "Comstock," and said to be "free as air." The quartz is entirely dissimilar in appearance from anything ever seen in any other district in the State. It is a brownish color and of a shelly nature. The next claim north of the Cow and Calf is the Silver Wreath, on which there is as yet but little work done. In the Rattler's Joy and the Rambler's Luck, some of the ore shows copper glance and stetteldite, etc. They are very rich on top, but undeveloped. The names of the principal locations, exclusive of the above named, are Lookout, Columbus, O'Dare and Starling, Monitor, Lookout No. 2, First North Extension of the Cow and Calf, and the Prospect Shaft.

### WHITE PINE.

**BULLION FORWARDED.**—W. P. *News*, Sept. 10th: W. F. & Co. shipped to-day to N. Y., 8 bars weighing 522 lbs., valued at \$9,270.81, and during last week, bullion footing up the sum of \$55,836.52.

**NORTH AURORA.**—In the Lady's Chamber there are now from 1,500 to 2,000 tons of ore in sight and broken down.

**SOUTH AURORA.**—Contracts have been let to sink three shafts, each 70 ft. deep—one in the Turner drift, one in the Trewelle drift and one in the Hanly drift.

**GREAT WESTERN.**—Drift from upper shaft in 30 ft. in ore of low grade. Lower shaft is down 61 ft., going through a hard cap of lime rock.

**BEECHER CONSOLIDATED.**—Sinking incline in main shaft, in order to take out ore to advantage; 3 drifts now running in ore. Dumps cleaned out and in at mill.

**HEMLOCK.**—Found a fine body of ore. Sinking in Hemlock Chamber.

**WABASH.**—Down 45 feet; good ore in sight.

**GLAZIER.**—Oshorne shaft sinking. Have found a large body of chloride and horn silver ore. Also sinking Miller shaft to strike ore at a greater depth.

**GEN. LEE.**—Running drift on spar seam. Now in 110 ft. Quality of ore improving. The foot wall pitching sharply to the northeast, could not be followed further, as the drift is running on a level, with ore on all sides of it, and prospects of soon developing a large body.

**EAST SHEBOYAN.**—Force of men increased. Work is pushed ahead night and day, in breast and shaft. The breast is now about 16 ft. long, 10 wide, and 9 high with ore throughout the whole face. The ledge is pitching fast into the hill, and becoming more solid. There is a good showing of horn silver in the ore, which resembles Hidden Treasure. The shaft shows 8 ft. of solid ore with a very rich streak between 2 and 3 ft. wide pitching into the hill. This company shipped their maiden brick this week; value \$538.19, proceeds of 12 tons of ore.

**NEVADA.**—Taking out good ore.

**WARD BEECHER.**—The Phillpots shaft is down, connecting with Phillpots chamber. Now hoisting ore from that chamber with the engine. The horsepower has been moved from the whip-shaft and erected on the Risdel shaft of the North Aurora. A large body of ore is in sight in this mine.

**ENERHARDT.**—Work is going on in the Keystone shaft and other portions of the mine.

**GENESE.**—The South Aurora Company is preparing to sink a new shaft from the bottom of the main incline 100 feet deep.

**SOUTH ICEBERG** is taking out very fine ore.

**CASPIAN.**—Situated about 250 yards southwest of the Pocotillo. Incline now down nearly 200 ft., with drift from the bottom in 40 ft.

**SILVER WEDGE.**—This mine shows a marked improvement since last week. A year and a half ago a top deposit of ore was obtained at a depth of 70 feet. In the floor of this ore chamber a shaft has been put down 57 feet—40 feet of the distance in solid limestones. A drift is in 30 feet in a southeasterly direction, toward the main ore channel, where there is good ore. Plenty of ore in the face of the drift.

**TRENCH.**—50 tons of ore from this mine are now at the Monte Cristo mill. It assayed \$325 to the ton; 5 tons per day is hauled from the mine to the mill. It is estimated that there is now \$30,000 worth of ore in sight. Running three drifts with ore in all of them. Ledges from 3 to 6 ft. wide. Working 8 men.

**BALD EAGLE.**—Incline down about 75 ft. Ledge from 4 to 5 feet wide; 125 tons of ore on the dumps that is expected to go \$90 per ton.

**PHILADELPHIA.**—Incline down 8 ft. Ledge going down at an angle of 34°; 50 tons of ore on the dump.

**OUTSIDE DISTRICTS.**—PIERMONT.—Mill running on company rock. Sinking shafts and running main tunnel. Working 22 men. There is a probability that 10 more stamps will be added to the mill.

**SCHELL CREEK.**—Accounts are favorable as to the existence of rich croppings found for a distance of 15 or 20 miles on the Schell Creek range of mountains.

## Arizona.

**ITEMS.**—Prescott *Miner*, Sept. 2d: W. N. Kelley and others have discovered another promising silver ledge. Its location is a little west of the Gen. Crook lode. The silver is contained in galena, assays of which have yielded enormously.

C. Y. Shelton is purchasing animals to run his astras on Upper Lynx Creek. He has, ready for crushing, several tons of Vernon ore, worth, he says, about \$1,000 to the ton in free gold.

To test the Tiger mine thoroughly, for the next 4 months, shafts will be sunk in different places.

## British Columbia.

**DISCOURAGING REPORTS FROM PEACE RIVER.**—An Olympia paper is informed that 400 men returned to Victoria during last week, half starved and ruined in health and purse.

## Colorado.

**BOULDER Co.**—Cor. Central *Reporter*, Sept. 13th: The average of a foot crevice in the "Democrat" and "Brick Pomeroy" veins, Gold Hill Dist., shows over 300 ozs. per ton.

A recently discovered gold lode in the same dist., with a 15-inch crevice, is reported to yield 35 ozs. gold per cord, under stamps. The silver ores are sulphurets, with smaller quantities of argentiferous



ous galena and brittle silver. A great number of lodes are opened to well defined crevices of the most valuable silver ore.

Work is to be resumed on the Trojan, Cardinal Dist. It is leased, we are told, with the expectation of a sale. The main shaft is 80 ft. deep, with better pay in the bottom than was ever taken out above. The vein carries 14 inches of smelting ore, besides 3 ft. of stamp-mill ore, yielding 9 ozs. gold per cord.

On the same hill is the Laramie. The main shaft is down 31 ft., and shows a 4 ft. crevice of rich gold ore, an average of which assays \$70 per ton gold, and also carries silver.

On the hill west is the Corral, opened in numerous places along the whole location, with a great deal of pay ore on the dumps. Assays of ore from the Spotted Jack gave \$800 and upwards, per ton. The main shaft is 28 ft. deep.

The Idaho lode, Cinnabar Dist., is again producing first-class ore, with the appearance that soon the whole body of the crevice will show its former richness. On the same hill the Elephant lode is worked with most satisfactory results. Another lode near by the Monitor has a shaft 62 ft. deep, and a 5-foot crevice of ore.

The smelting furnace of Kearsney, Henderson & Co. will be completed in a few weeks.

W. Pierce & Co. are working the Elgin lode, Caribon hill. The depth is 18 feet showing 5 feet in width of solid mineral, carrying 80 oz. of silver per ton.

The Georgetown is a promising lode on the northern slope of the Caribon hill, and opens with a large amount of the surface ore.

The Caribon Mine, hardly down 200 ft. in its deepest shaft, continues its improvement and has in the bottom a crevice of shipping ore 5 feet in thickness, which averages so high that if we were to give the exact figures they would be deemed incredible.

The Western slope is now down about 45 feet looking first-rate, and is being worked actively. The Blue Bird, idle for several weeks, will be worked with a full force.

CLEAR CREEK Co.—Cor. same: The Stewart Reducing Co. shipped a Silver brick of 60 lbs worth \$1,000 coin.

S. Robertson & Co. on Equator Slide Leavenworth Mt. have struck several veins of rich silver ore, supposed to be a portion of the Compass and Square lode and have commenced working them. The ore is galena and sulphurets of silver, worth from 25 cts. to \$1 per lb. The average in thickness is about one inch. Two men have drifted from this claim in the past month 2,000 lbs.

of first-class ore, worth 600 ozs, silver, and 1,500 lbs. second class ore, worth 200 ozs., about \$1,000 for the month. Below, Mr. Thompson and associates have worked the ground 20x100 feet, and taken from it enough to pay them an average of \$10 per day; they are running a tunnel under this ground.

Bishop, McGlen & Rogers are working Compass and Square lode from the discovery, or a shaft near it. They have been raising one ton first-class ore and one ton second-class ore per month. The first-class runs 1,000 oz. per ton, and the second-class 500 oz. per ton.

The O. K. Lode has a tunnel 90 ft. long that cuts the vein 50 ft. deep. An adit on the vein 100 ft. long on the level of the tunnel has also been run. The main shaft is 116 ft. deep and 30 ft. below the adit a winze had been sunk 35 ft. at the east end of the adit, and has been found a uniform vein of sulphurets of silver and galena.

PARK Co.—Cor. Denver Tribune, Sept. 15: The Moose lode, discovered this summer, has been uncovered for 250 ft. and shows a crevice of ore from 16 to 20 inches in width. The ore assays at the rate of 400 oz. silver per ton. Miller & Fresler have a lode near the Moose that they have opened for a distance of 100 ft; ore is very similar to that in the Moose, and assays about the same.

Gross & Treweek have 3 silver lodes about one mile from Buckskin, that look very promising. The vein in each is 2 ft. wide, and the assay value of the ore is 155 oz. per ton. The Colfax lode has a crevice 20 inches wide, and the assay value of the ore is 215 oz. per ton.

SUMMIT Co.—W. King, has discovered two free gold-bearing lodes in Pollack dist, within the past two weeks.

MCCLELLAND MT.—Minneapolis ore is reported on good authority, to assay over 1,700 oz. silver, per ton. McKinney & Mason are running a prospecting tunnel. Campbell & Hazard are developing the Empire and Silver Crest lodes, close by. Davis & Co. are working the "Masto-

dou," an immenso mineral vein in Peewick dist, southwest from the Sugar Loaf Mt.

WATERMAN is through the cap on the Kansas and now has a 2-ft vein of splendid ore, which, on being raised to the surface, is graded into three qualities. The first assays gold per ton \$405.75, silver \$45.32. The second quality gold \$185.35, silver \$23.49; and third gold \$80.36, and 16.92.

### Idaho.

BULLION SHIPMENT.—W. F. & Co. shipped from here this week 10 bars of bullion, valued at \$16,366.10.

GRANITE CREEK.—Idaho World, Sept. 21: The excitement about quartz in the neighborhood is at a fever heat. T. S. Hart's new quartz mill commenced work Tuesday a week ago, crushing ore from the Lawyer ledge; a sufficient amount of quartz is now on hand to run the mill 10 or twelve months at least. Some 20 or 25 men are at present engaged in the mine and mill.

### Montana.

HENDERSON GULCH.—Deer Lodge Independent, Sept. 9th: Hennessey & Murray cleaned up \$1,600 from 3 weeks' run, with water only 4 hours a day. J. McDermott and C. F. McAndrews have purchased Murray's interest and one-third of Hennessey's, paying \$5,000 for it. Walwork, Terrill & Co., on the bar below, are making on an average \$12 per day, having water all day. O'Connors & Mastison are making from \$15 to \$20 per day to the hand. T. Smith & Co. are making from \$12 to \$15 to the hand. O'Connors & Mastison had their flume robbed (supposed) by Chinamen of some \$300 about 2 weeks ago.

FRENCH GULCH.—S. Garret, informs us that the claim in the main gulch, owned by himself, Birmingham and Louis was lately sold to Chinamen for \$1,500. Lynch, Garret & Co., in Fenian gulch, have been doing well all season. Brownell & Co., in the swamp claim, took out 150 ozs. from the last run of 3 weeks.

WASHINGTON GULCH.—D. Seaton reports that D. Brown lately purchased an interest with L. Flinn & Co. for \$800; also, that Stoner and a few others on the bar are making money.

CABLE.—Mr. Cameron expects to be taking out ore inside of this month. The water is receding in the mine. A drift has been started from another shaft to tap a large body of quartz above the present water level.

VIPOND DIST.—A prospector discovered a very rich ledge last week and has found good indications of another. The Vipond Bros. are taking out rock, which is said to be very rich.

PHILIPSBURG ITEMS.—Helena Herald, Sept. 7th: The 3 stamp battery, erected by Blay, Bell & Co. during the summer, is running but slowly owing to the scant supply of water. Col. Lyon has had a force of men employed in erecting a 5 stamp mill, etc., which will be in running order in a few days. The Trout mine shows a ledge of more than ordinary richness. The Franklin is developing a fine body of good ore. Estell & Holland are working in the Salmon Ledge and have struck richer ore in it than they anticipated.

### Utah.

BULLION.—S. L. Tribune, Sept. 16th: W. F. & Co., forwarded yesterday, of Pioche bullion, 6 bars valued at \$8,082.55, on the 11th; 17 bars valued at \$36,804.41 on the 12th; 21 bars 1,997 lbs valued at \$27,791.36, and on the 15th 6 bars 685 lbs valued \$8,082.55 the latter from Meadow Valley M. Co.

Woods & Co. shipped yesterday, an ore-crusher to the Utah Smelting Co., Birmingham Cañon.

SALE.—One-half interest in the Buckeye and Chadburn mines, Big Cottonwood, was sold on the 29th of Aug. to B. Lyon, W. N. Cowan and Wm. Shotwell, for the sum of \$7,000 cash.

THE FOOTE AND RICE TUNNEL, in the Emma Hill, is being run daily with a full force of men. It is the intention to strike the Emma, New York, and other rich mines that run in a line with this location.

ADELAIDE.—A very large body of ore has been struck, which runs high in silver, and the lode is increasing in dimensions.

WELLINGTON.—A depth of 100 ft. has been reached, revealing a very large body of rich ore.

### Oregon.

By TELEGRAPH.—Sept. 18th: The ditches are approaching completion and the mining prospect is very flattering: 300 men are now at work on the "big ditch."

A \$600 nugget, the largest ever turned out in Baker county, has been sent to the east.

### Mining Stock Market.

THURSDAY EVE., Sept. 21, 1871.

Mining stocks generally have been active this week. On Saturday last there was an increased firmness in Belcher, Kentuck, Overman, and Raymond & Ely, and the week closed with prices firm. The sales in the Stock Board up to last Friday aggregate \$2,188,000. The Raymond & Ely declared a dividend of \$1.50 per share against \$1.00 for last month. The yield of the mine on September account up to the 12th, was \$65,600—equal to \$6,000 per day. The highest average heretofore was \$4,100 per day. Up to Monday the receipts on this month's account of the Meadow Valley mine were \$44,600, and from the Golden Chariot, on same account, \$10,000. The Superintendents of the Raymond & Ely and Meadow Valley mines report no damage done to their respective mines or properties by the recent explosion and fire in their vicinity. The Pioche mine sent down \$12,000 on the 17th inst. At the Crown Point mine 1,400 tons of ore were taken out last week, valued at \$54,500. The last weekly report of the Hale & Norcross mine shows 600 tons of ore extracted and 2,200 tons on the dump. The Savage took out last week 820 tons, averaging \$32.40 per ton. The feature of the Stock Market yesterday was the large sales of Meadow Valley, Pioche, and Raymond & Ely, at improved figures. Stocks were active this morning. Raymond & Ely is still the feature, having an upward tendency, and rising to \$74—an increase of 100 per cent. in a week.

Alpha.....	295	280	285	1
Amador.....	285	280	285	1
Belcher.....	285	280	285	1
Chollar-Potosi.....	285	280	285	1
Crown Point.....	340	320	320	30
Empire Mill.....	5	5	5	5
Euclid Cons.....	18	18	17	17
Golden Chariot.....	14	14	14	14
Gould & Curry.....	119	104	108	8
Hale & Norcross.....	86	82	97	3
Ida Elmore.....	35	45	35	1
Imperial.....	143	132	160	17
Kentuck.....	40	40	40	40
Meadow Valley.....	24	30	28	34
Occidental.....	22	23	23	2
Ophir.....	22	23	23	2
Oriskany.....	17	17	17	17
Overman.....	13	12	17	3
Savage.....	40	43	40	42
Sierra Nevada.....	18	17	17	17
Silver Wave.....	58	61	57	57
Yellow Jacket.....	58	61	57	57

Alpha Cons.....	11	12	Ida Elmore.....	3	4
Amador.....	290	300	Imperial.....	158	160
Belcher.....	285	285	Kentuck.....	30	30
Chollar-Potosi.....	31	32	Meadow Valley.....	29	29
Crown Point.....	320	330	Ophir.....	22	24
Daney.....	5	6	Oriskany.....	16	17
Euclid Cons.....	17	17	Savage.....	42	42
Enreka.....	17	20	Sierra Nevada.....	18	18
Golden Chariot.....	13	15	St. Patrick.....	42	42
Gould & Curry.....	106	106	Yellow Jacket.....	55	56
Hale & Norcross.....	97	100			

### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENCY	OF DATE
Argenta S. M. Co., Nev., Sept. 4, 25.....	Oct. 7—Oct. 28	
Alameda Coal M. Co., Cal., Sept. 7, 60c.....	Oct. 7—Oct. 30	
Bellevue, Placer Co., Cal., Aug. 30, \$1.....	Oct. 3—Oct. 23	
Buckeye, Lyon Co., Nev., Sept. 11, 60c.....	Oct. 16—Nov. 3	
Cherokee, El Dorado Co., Aug. 12, 10c.....	Sept. 13—Oct. 13	
Columbus M. & Co., Aug. 8, \$1.....	Sept. 12—Sept. 30	
Cons. Vir. Storey Co., Nev., Aug. 1, \$1.50.....	Sept. 6—Sept. 26	
Empire Mill & M. Co., Nev., Aug. 23, \$12.....	Sept. 27—Oct. 17	
Gen. Lee S. M. Co., W. P., Aug. 25, 10c.....	Sept. 29—Oct. 13	
Golden Run M. Co., Cal., Sept. 5, 25c.....	Oct. 10—Nov. 1	
Golden Chariot, Sept. 12, \$5.....	Sept. 23—Nov. 13	
Hale & Norcross, Sept. 12, \$10.....	Sept. 23—Oct. 13	
Jackson, Lander Co., Aug. 30, 25c.....	Oct. 4—Oct. 24	
Julia, Storey Co., Nev., Aug. 31, 50c.....	Oct. 4—Oct. 24	
Kincaid Flat M. Co., Tn. Co., Aug. 4, \$2.....	Sept. 11—Oct. 28	
Lucerna M. Co., Nev., Aug. 17, \$3.....	Sept. 20—Oct. 9	
Mahogany G. & S. M. Co., I. T., Sept. 4, \$3.....	Oct. 12—Oct. 31	
Raymond & Ely, Sept. 12, \$10.....	Sept. 23—Oct. 13	
Metropolitan M. Co., Nev., Sept. 11, \$1.50.....	Oct. 16—Nov. 2	
Mina Rica M. Co., Placer, Aug. 8, 20c.....	Sept. 11—Oct. 3	
North America Con. M. Co., J. I., 31c.....	Sept. 28—Oct. 18	
O. H. Treasure, July 6, \$2.....	Sept. 7—Sept. 27	
Ophir C. S. & G. M. Co., Aug. 2, 75c.....	Sept. 4—Sept. 26	
Overman, G. H., July 26, \$2.....	Aug. 31—Sept. 18	
Piermont, W. P., Sept. 4, \$1.....	Oct. 9—Nov. 8	
Pocahontas G. M. Co., Cal., Sept. 13, \$3.....	Oct. 23—Nov. 27	
Quail Hill M. & W. Co., Aug. 16, \$20.....	Sept. 27—Oct. 16	
Shinley, Placer Co., Aug. 2, \$2.....	Sept. 6—Sept. 27	
Silver Wave, White Pine, Sept. 1, \$1.....	Oct. 3—Nov. 3	
St. Louis M. Co., Nev., Aug. 17, \$3.....	Sept. 20—Oct. 9	
St. Louis M. Co., Nev., Sept. 5, \$3.....	Oct. 9—Oct. 25	
St. Patrick, Ophir Dist., Aug. 16, 50c.....	Sept. 20—Oct. 9	
Sumner, Kern Co., Aug. 15, \$1.....	Aug. 15—Aug. 30	
Tumseh G. S. & C. M. Co., J. I., 25c.....	Sept. 23—Oct. 14	

MEETINGS TO BE HELD.	DATE
General Lee S. M. Co.....	Annual Meeting, Sept. 19
Imperial Consolidated.....	Annual Meeting, Sept. 28
Meadow Valley Extension.....	Annual Meeting, Sept. 28
North Star G. M. Co.....	Annual Meeting, Sept. 25
Overman.....	Annual Meeting, July 13
Segregated Belcher.....	Annual Meeting, Oct. 3

LATEST DIVIDENDS—(Within Three Months).	DATE
Black Diamond Coal M. Co.....	Payable Sept. 15
Chollar-Potosi, \$2.....	Payable July 11
Chollar Potosi, \$1.....	Payable Sept. 9
Crown Point \$10.....	Payable June 10
Euclid Cons., \$1.....	Payable July 7
Euclid Cons., \$1.....	Payable Sept. 20
Keystone M. Co., \$2.....	Payable Sept. 10
Meadow Valley, \$1.....	Payable July 15
Meadow Valley, \$1.....	Payable Sept. 15
Natoma, div. 1 per cent.....	Payable Aug. 5
Pioche S. M. Co., \$1.....	Payable Sept. 16
Raymond & Ely, \$1.....	Payable Sept. 13
Redington, 1 per cent.....	Payable Aug. 15
Succor Mill and M. Co., 50c.....	Payable Sept. 16
Yellow Jacket, \$2 50.....	Payable July 10
Yule Gravel, 60 cts.....	Payable Aug. 4

—Advertised in this journal.

### San Francisco Retail Market Rates.

FRIDAY, September 22, 1871.

MISCELLANEOUS.		
Butter, Cal fr. B.	45	35
Picked, Cal. B.	45	35
do Oregon, B.	45	35
Honey, # B.	25	30
Cheese, # B.	20	25
Eggs, per doz.	35	40
Lard, # B.	15	20
Sugar, # B.	10	15
Beef, do, # B.	10	15
Beef, do, # B.	10	15
Sugar, Map. B.	25	30
Plums, dried, B.	15	20
Peaches, dried, B.	15	20

PRODUCE, ETC.		
Codfish, dry, B.	8	10
Flour, ex. B.	7.50	8.00
Superfine, do.	6.00	6.50
Corn Meal, No. 3, B.	6.25	6.50
Wheat, # 100 B.	5.50	6.25
Oats, # 100 B.	1.50	2.00

FRUITS, VEGETABLES, ETC.		
Pine Apples, # doz.	75	80
Bananas, # doz.	30	35
Cal. Walnuts, B.	75	80
Cashews, # doz.	75	80
Cranberries, # doz.	75	80
Apples, Early, B.	50	55
do, Late, B.	50	55
do, Red June, B.	50	55
Pears, table, # doz.	75	80
Plums, Cherry, #	6	10
do, do, #	10	12
Apricots, Royal, #	3	4
do, do, #	3	4
Cherries, B.	5	10
Currents, B.	6	8
Gooseberries, B.	3	8
Raspberries, B.	18	20
Strawberries, B.	8	10
Blackberries, B.	8	10
Gooseberries, B.	3	8
Lemons, # doz.	50	60
Limes, # doz.	25	30
Rais, dried, B.	6	10
do, do, B.	6	10
Apples, # doz.	25	30
Artichokes, # doz.	50	60
Brussels sprouts, #	15	20
Beets, # doz.	20	25
Potatoes, # doz.	2	3
Potatoes, sweet, #	4	5
Broccoli, # doz.	4	5
Cauliflower, # doz.	1	2

POULTRY, GAME, MEATS, ETC.		
Chickens, # doz.	50	75
Turkeys, # doz.	20	25
Ducks, wild, #	1	2
Game, # doz.	1	2
Geese, wild, each	25	30
do, pair, 2.50	30	35
Salmon, # doz.	5	10
Hares, each	75	80
Snipe, # doz.	10	12
English, do.	10	12
Quails, # doz.	10	12
Pigeons, dom. # doz.	30	35
do, wild, # doz.	30	35
Hares, each	40	50
Rabbits, tame, #	20	25
Wild, do, # doz.	15	20
do, pair, #	20	25
Beef, # doz.	20	25
Sirloin and rib	18	20
Corned, # B.	15	18
Smoked, # B.	15	18
Pork, rib, # doz.	12	15
Chops, do, #	12	15
Veal, # B.	15	20
Outlet, do.	15	20
Mutton chops, #	12	15
Leg, # B.	12	15
Soft, # B.	15	20
Tongues, beef, #	15	20
Tongues, pig, #	15	20

POULTRY, GAME, MEATS, ETC.				
Chickens, apiece	50	@	75	
Turkeys, # B...	20	@	25	
Ducks, wild, # B				
Bacon, Cal., # B	18	@	20	
Oregon, do	18	@	20	
Hams, Cal., # B	18	@	20	



## NOTICES OF RECENT PATENTS.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

**HARVESTER.**—James H. Adamson, Auburn, South Australia, assignor to Rev. Wm. Taylor, Alameda, Cal. This invention relates to an improvement in machines for reaping, dressing, and cleaning grain, and consists of a frame mounted upon suitable wheels, and having a peculiarly shaped comb attached to the front so that it reaps or pulls off the heads of the grain and carries them with the assistance of a set of revolving beaters, into a cylindrical box or case, which extends across the front of the machine just behind the comb and within which the beaters revolve rapidly. These beaters loosen the grain from the husk, by their rapid blows, and, at the same time produce a blast of air which carries the whole up an inclined funnel or chute. The rear end of this funnel is bent sharply downward, and is provided with a series of stout wires below its mouth, between which the grain falls into a receptacle below. The chaff and light straw, guided and supported by the wires, are carried into the large end of a cone, the small end of which opens toward the rear of the machine. This cone is suitably suspended, so that as the front or reaper part of the machine is elevated or depressed, the cone will, to a great extent, retain its relative position with the other parts of the machine and the ground. The interior of the cone is provided with annular ribs, and also with longitudinal vanes, the former to prevent the straw from sliding endwise and the latter to lift it up as the cone is slowly revolved, and drop it through the current of air which passes through the cone. An adjustable screen at the rear end of the cone prevents the wind from blowing the chaff back. The front of the machine is supported upon a steering wheel operated by a lever, and may be elevated or depressed to suit the crop. The comb bar is so connected with the beater shaft that it and the comb can be moved about the shaft, and by means of a sort of parallel motion the front of the comb is held so that the grain will not be lost in descending hills or in lowering the front of the machine.

**IMPROVED HAY PRESS.**—Oscar Bossee, Milbrae, San Mateo Co., Cal. The object of this invention is to provide an improvement in upright hay presses, by which a greater capacity for work is attained with the same force, and it consists in making the chamber higher than the space necessary for the hay. The follower is at the bottom, and an upper rack is brought over the hay when the chamber is full, and secured, the follower being moved up towards it by suitable mechanism, till the hay is sufficiently compressed. The two racks are thus clamped together and the whole is raised to the upper part of the chamber to be tied, while another follower can be placed at the bottom and the work of filling the press can go on again. After the bales are tied, the discharge door can be opened and the bale rolled out either upon a wagon or upon a pile, all lifting being avoided in either case; meanwhile, the follower is removed ready to take the place of the one already in, and the pressing mechanism again connected, so that there is very little delay at any time.

**BLOTTING RULER No. 1.**—Louis Feusier, Virginia City, Nev. This invention relates to a clasp for paper rulers, which is intended to hold a blotting pad in the proper position to dry ink lines after they have been ruled, and thus prevent a further use of the ruler from blotting or spreading the ink. It consists of a thin piece of sheet metal cut and bent to fit the ruler on the underside, and hold a narrow piece of blotting pad, which is inserted into properly formed grooves in the clasp.

**BLOTTING RULER No. 2.**—Louis Feusier, Virginia City, Nev. This invention also relates to a paper ruler with a blotting pad, and is of simpler construction than the one first mentioned, which uses a metal clasp. In this ruler a longitudinal slot is made on each edge of the ruler, and a piece of blotting pad is bent into a shape

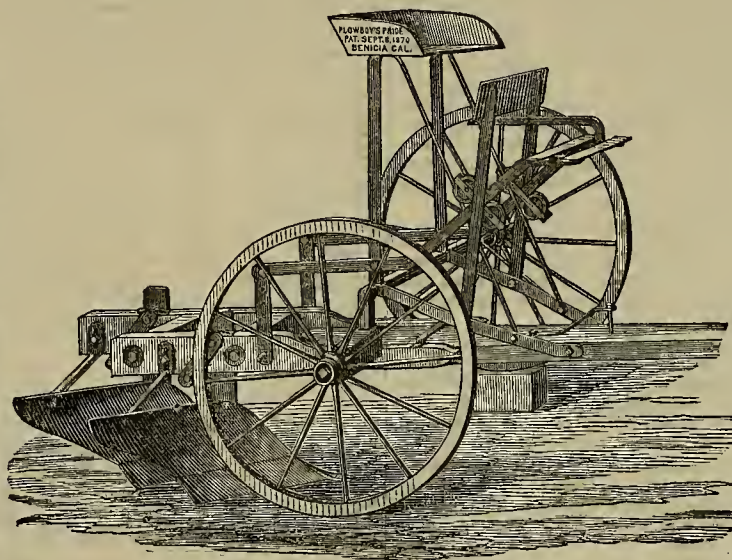
to cover the lower face, and its turned over edges enter the slots so that it is secured to the ruler.

**TUBULAR BOILER.**—Oliver Hyde, Oakland, Cal. The object of this invention is to provide certain improvements in that class of steam boilers through which vertical flues or heat passages extend upward from the fire-place, and it consists in surrounding each of these flues with a shell or tube of larger diameter than the flue, so as to form a jacket about it. The outside tubes are open at the bottom to admit water freely into the space around the flue, and are open at the top to permit the escape of the steam which forms quickly and creates a strong circulation and ensures the rapid heating of all the water in the boiler.

## Andrews' Patent Gang Plow.

The accompanying engraving represents the "Plowboy's Pride," invented by Jas. H. Andrews, of Benicia, Solano Co., Cal., the patent for which was procured through the SCIENTIFIC PRESS Patent Agency. The improvement in this gang plow refers more especially to the device for elevating or depressing the plows, as desired.

By referring to the cut it will be seen that there are two foot-boards in front of



ANDREWS' PATENT GANG PLOW.

the driver's seat. The plows are represented as being in the ground, and one of these foot-boards is depressed, as it would be in case the driver was plowing. On turning around or crossing a road or any obstacle, the foot is raised and the pressure put upon the other foot board, by which the plows are lifted by means of the levers shown in the engraving. The construction is very simple, and the manner of working is apparent to anyone who is familiar with the usual means of raising or depressing plows of this class.

These plows are easily worked, of light draught, and adapted to any character of soil. Improvements in implements of this kind are of the greatest benefit to the farmer, and in such a number of varieties as there are extant, everyone ought to be able to choose one to satisfy him perfectly. We doubt whether old Cincinnatus would have left a comfortable seat behind four horses, on a plow like this, with the same readiness that he did his old-fashioned crooked limb, with two handles like a wheelbarrow. His *amor patriæ* would have been more severely tested had he been using one of these plows. Further information concerning this invention, can be had by communicating with James H. Andrews, of Benicia, Solano County, Cal.

THE MOST EXTENSIVE MINING FIRM in the world is John Taylor & Sons, of England, who have mines in almost every quarter of the globe. They are said to give employment to 56,000 men in England alone.

## American Institute Fair, New York City.

BY OUR NEW YORK EDITOR.

Before this reaches the eyes of our readers the great Annual Fair of the American Institute will be open to the public. As in many respects this is one of the most important exhibitions in the Eastern States, we have taken some extra trouble to obtain beforehand some facts in regard to the scope of, the design and the method in which it has been carried out.

## The Building

in which the fair is held is the so-called 3d Avenue Skating Rink, at 63d street and 3d Avenue. It is an immense structure covering nearly a whole block and extending from 3d almost to 2d Avenue. It was built some years since for the purpose which its name indicates. We don't know as it can be better described than by saying that it looks like a three acre lot with an arched roof turned over it. It has about 120,000 square feet of floor surface available for the purposes of the Fair.

## The Arrangements this Year

are far ahead of those of last season. We

breakers and crushers, are also on the list; so also are leather dressing, ornamental carving, glass engraving and blowing, making of gimps, fringes and tassels, washing, fluting and ironing.

Now if a man, woman, girl or boy can go through the Fair and not learn something, we think their capacity for imbibing knowledge, is limited, to say the least. But we must not forget the last on our list, which are working models of engines, locomotives, marine, etc., engraving, and rock cutting by means of the sand blast of which so much has been said by the scientific lights, during the last six months.

Steam to the extent of 200-horse power will be provided, which should be amply sufficient to give every engine dry steam. Among the boilers we notice one of Root's, and one from the Allen Engine Works. Three or four large engines are already partly up.

## Why Some Refuse to Exhibit.

The pump department is pretty well represented, though many of our best makers will not exhibit. This is much too often the case. The best men do not come forward and compete, because they don't like to explain the details and proportions of their pumps for others to take advantage of, and if they don't make all the little refinements public, they stand no better chance than others for the reason that too often, the trials have not been exhaustive in character. There should be tests which should demonstrate the actual economy of each machine. The dollars and cents value of the work done by each pump should be ascertained, which together with the cost of the same, should be the basis upon which to grant the prizes.

In England the Royal Agricultural Society has been carrying on many competitive trials in this way, and has given us some of the most exhaustive tests that have ever been put on record. These faults—in the method, of testing articles for competition have become so great that

## An Entirely New Plan of Awards

Has been adopted. Only one prize is to be given—the grand gold medal of honor. But each machine exhibited is to have a thorough trial and the exhibitor has a report of the same. This will probably give all the advantages of the old system while avoiding its defects.

## California Exhibitors.

Arrangements have been made, we believe, to extend the time for entries from the Pacific slope in order to give time for California exhibitors to bring their goods on after the closing of the Mechanics' Institute Fair, at San Francisco. This opportunity should not be neglected, as it is exceedingly important that all the Pacific slope should be represented. People here are much too prone to forget that the extreme Western States are anything more than mineral in their production. Soon we will say a word or two about the opening scenes and incidents.

**NEW METHOD OF UTILIZING THE SOUTH CAROLINA PHOSPHATES.**—Hitherto these phosphates have been finely pulverized and in that condition subjected to the action of sulphuric acid, in order to render them soluble, and capable of serving as food for plants. This is quite an expensive process, and one which must be managed with much care and skill to avoid an excess of sulphuric acid, which would be very injurious to the soil; while a short supply of acid fails to render the entire mass capable of being utilized by the plants.

Mr. John Commins, of Charleston, near which city these deposits are found, has discovered a new, cheaper and perfectly sure method of preparing the phosphates, without any use whatever of sulphuric acid, and which, if the results are what he claims for them, is certainly a very important discovery. His process consists in heating the phosphates (which occur in round nodules, generally much harder than ordinary limestone,) in a furnace like a limekiln, and when so heated to allow seawater to drip upon them. By this operation the stone is thoroughly disintegrated—like the slacking of lime—and, as claimed by Mr. Commins, placed in a perfectly soluble condition, capable of being readily assimilated by plants. Aside from the simplicity and cheapness of this process, any method by which sulphuric acid can be dispensed with in the preparation of manures should be received with especial favor. It is to be hoped that the discovery of Mr. C. may prove entirely successful.

## What Is To Be.

It will be one of the great objects with the Board of Managers, this year, to make the Fair a source of instruction. In other words we have the school-master in the character of showman. For our life we can't see why he should not take the part if he can do successful teaching that way. Now let us see what he is to teach. As far as practicable, industrial processes are to be exhibited *actually going on*. Among these there are the following:—

Milling of grain. As they can't raise the wheat at the Fair, they have to begin with the grain, but they put it through all the other manipulations, grinding, bolting, making into bread, baking and eating. Planing, sawing and re-sawing machines will be at work. Carpet weaving, blacksmithing, forging, carding and burring, will all be shown. A great power press will be set up and editions of the "Mirror of Typography" and the "Aldine" will be run off—showing people just how the most splendid printing, that the world has seen, is done. The whole of the lithographers, art will be shown in operation, from the preparation of the stone to the printing of a chromo.

Stone sawing, diamond drills, stone



## USEFUL INFORMATION.

## Snakes in Ireland.

Once a Week corrects the common notion that there are not snakes in Ireland, as follows:

"A correspondent informs us that not only do serpents and frogs manage to exist in Ireland, but that they absolutely swarm, the latter especially, in the country districts—notably in the county of Dublin and the Queen's county. But as the snakes are there, and old authorities maintain that Ireland was free from them until comparatively recent times, the fact remains that somebody must have imported them. One account gives it out that they were first propagated from spawn, introduced as an experiment, in 1836, by a Fellow of Trinity College, Dublin; another, that a gentleman imported a number of vipers from England into Wexford, about the year 1797, but they died immediately after. In the summer of 1831, however, a gentleman, by the way of experiment, brought a few pairs of the common snake from Scotland, and placed them in a plantation at Milecross, near Newtonards, and the result was with which they multiplied was more alarming than pleasant. The late Marquis of W—d, well known in his day for his strange freaks, is said to have tried the same experiment on his own estate, but with no success."

**SUN LIGHT THROUGH THE BLINDS.**—Who is there that has not often admired the beautiful little circular forms which sunlight takes when shining through the blinds or any other elongated aperture, upon opposite walls. Some asks the *Herald of Health* why it is that the rays of light take those circular forms rather than forms corresponding to the shape of the opening through which they pass. That journal replies as follows:

All that can be said on this point is that such is the fact. Light thrown off by a luminous body assumes a conical or cylindrical form, according to the conditions under which it appears to the observer. All pencils of light are primarily diverged from every point of a luminous body throwing off light in a conical stream; converging rays and parallel rays are generally regarded as having a cylindrical shape.

**WHAT CLOVES ARE.**—Cloves are the unopened flower of a small evergreen tree that resembles in appearance the laurel or bay. It is a native of Molucca, or Spice Islands, but has been carried to all the warmer parts of the world, and is now cultivated in the tropical regions of America. The flowers are small in size, and grow in large numbers, in clusters to the very ends of the branches. The cloves we use are the flowers before they are opened, and whilst they are still green. After being gathered, they are smoked by a wood fire, and then dried in the sun. Each clove consists of two parts of a round head, which are the four petals or leaves of the flower rolled up, inclosing a small number of stalks or filaments; the other part of the clove is terminated with four points, and is in fact, the flower cap of the unripe seed vessel. All these parts may be distinctly seen if a few cloves are soaked for a short time in hot water, when the leaves of the flower soften and readily unroll.

**CAN NOT SPEAK FOR CHOKING.**—When I rise to speak, I am so embarrassed my heart seem to rise in my throat and choke me. It is not for the want of knowledge of my subject or from the loss of words. What is the trouble and what the remedy?

*Ans.* If you use coffee and tobacco, their effect is to induce a rush of blood to the head under excitement. Embarrassment can be overcome by practice. You should read in public, and after awhile you can speak your own thoughts. Some ministers are, for many years, afflicted in the same way, but by writing and reading their discourses, in whole or in part, they finally overcome the embarrassment. —*Herald of Health.*

**AN ARTIFICIAL WHIRLWIND.**—The fact that whirlwinds are caused by upward currents of heated air, was demonstrated in the town of Queensburg, N. Y. in the following manner:—A farmer having occasion to burn a yellow pine fallow of some 20 acres, fearing that the fire might spread into the adjacent timber, ignited the fallow in several places on the edge, after taking the precaution of cleaning off the brush

from a strip surrounding it. The flames rushing toward the centre from every direction, the air and smoke soon assumed a rotary motion, which increased in intensity. This whirlwind—for such it was—after becoming fairly formed, moved with wonderful velocity on its axis, tearing up small trees by the roots and lifting them into the air, stripping the branches from some that adhered too firmly to the ground, and fairly wringing the bark from others. It was accompanied by a noise resembling thunder, and lasted from five to ten minutes, but did not pass the bounds of the fallow, although it swayed back and forth across the field of fire several times.

## How Scientific Men Work.

It is said when an eminent foreign savant once called on Dr. Wollaston, desiring to be shown over his laboratories, in which science had been enriched by so many important discoveries, the doctor led him into a little study, pointed to a table on which was an old teatray containing a few watch-glasses, test papers, a small balance, and a blowpipe, and said: "There is all the laboratory I have." Now, how was this possible? How could this meagre apparatus, which a schoolboy would find insufficient, serve to suggest and establish some of the highest and most fundamental truths of chemistry? Does not the explanation at once suggest itself, that the true field in which the leader of scientific thought works is his own mind? A great man uses the things which he sees to suggest to him ideal existences, and in his capacity of creating such as are consistent with all the known facts of the universe; his fame and distinction are grounded. Nothing could be farther from the truth, than to suppose that science accords with Mr. Gradgrind's demand for "facts, facts, nothing but facts". On the contrary, Prof. Tyndall long ago defined science as "the art of seeing the invisible," and, in a recent brilliant lecture, has happily shown that its progress depends largely on the fullest possible use of the imagination.

## How to Clear a Discharge Pipe.

It is not unusual to find the discharge pipe from the sink stopped, in consequence of the carelessness of a servant. In such a case, especially in the city the plumber has to be called in, who applies his air pump, and the clearance is effected. But plumbers are not always men of their word—in a recent instance we were compelled to wait two days before the plumber made his appearance. In consequence of this plumber's delay we set to work to study an air pump that might answer for the occasion, and one that would always be on hand. Here is the result and it works perfectly: Take a straight poker, or stick, and wrap one end with a wet cloth, holding the other end in the hand for safety, and use it as a piston in the pipe. Work it up and down a few times, and the clearance is effected.

**THE CARAT.**—WHAT IT IS.—The carat is an imaginary weight, that expresses the fineness of gold, or the proportion of pure gold in a mass of metal; thus, an ounce of gold is divided into twenty-four carats, and gold twenty-two carats fine is gold of which twenty-two parts out of twenty-four are pure, the other two parts being silver, copper or other metals. The weight of four grains, used by the jeweler in weighing precious stones and pearls, is sometimes called diamond weight—the carat consisting of four nominal grains, a little lighter than four grains troy; seventy-four and one-sixteenth carat grains being equal to seventy-two grains troy. The term or weight carat derives its name from a bean, the fruit of an Abyssinian tree called kuara. This bean, from the time of its being gathered, varies very little in weight and seems to have been from a very remote period, used as a weight for gold in Africa. In India also the bean is used as a weight for gems and pearls.

**PHARAOH'S SERPENTS.**—These, once so largely popular toys, have been almost entirely abandoned, owing to the poisonous character of their constituents and of their fumes. Dr. Puscher now announces that a mixture of 2 parts of bichromate of potassa, 1 part of nitrate of potassa and 3 parts of white sugar will produce the effect of the serpents without the attendant inconveniences. He recommends the mixture to be done up in paper or tin foil cones, as the original "serpents" were; and also the addition of some balsam of Peru to perfume it.

## GOOD HEALTH.

## Remedy for Chronic Diarrhoea.

The following remedy for chronic diarrhoea is from a medical work by Dr. Fancher:

Take two pounds of the bark of the root of blackberry; add a suitable quantity of water; boil for two hours, then pour off the liquid; then add more water; continue to boil and pour off till all the strength is extracted; then strain, and add all boilings together; simmer to two quarts; strain; add four pounds of loaf sugar, and when cold, add half a pint of the best French brandy. Dose, a tablespoonful three times a day, fasting. If it does not arrest the disease in a few days, gradually increase the dose as the stomach can bear.

The author says it will effect a cure when every other means fail.

Another and simpler remedy is as follows:

Put a tablespoonful of wheat flour in a tumbler of water; beat until it foams, and drink immediately. If the patient is thirsty more water may be added. It should be taken four times a day before meal times, and on going to bed.

**PHYSICIANS AS TEACHERS.**—Mrs. Julia C. Hill, who recently delivered the annual address before the Oregon and Washington Health Reform Association, remarked as follows on the duties of physicians:—"Permit me to say a word in regard to the duties of physicians. While the duty of curing the sick is justly regarded as of great importance, it has always monopolized too great a share of the physician's attention. The duty of teaching people how to live correctly, so that sickness will not be necessary, should be considered by every physician as paramount to any other duty. Physicians should also be qualified to instruct the people in regard to nursing the sick. In many cases, as much depends on good nursing as on the skill of the physician, and there are but few persons who properly understand the art of nursing the sick. Hence, to know and to teach how to nurse the sick, becomes one of the most important duties of the physician."

**BUTTER AND WORMS.**—There is no doubt that the larvae of the various worms which infest the alimentary canal of children, and frequently, too, of adults, are taken in with the food. Greasy substances are apt to abound with them. In a late German medical journal, a Dr. Huber relates many experiments he has made on this subject, and he comes to the conclusion that no article used by man as food, especially during childhood, is so prolific a cause of intestinal worms as butter. The use of butter serves also for the introduction of insects, as well as worms; and as American children seldom eat bread without a thick coating of butter, the general presence of intestinal worms need not be wondered at.

**AN INDICTMENT AGAINST ALCOHOL AND TOBACCO.**—The report of the British Factory Inspector, contains a statement made by the certifying surgeon at Bolton-le-Moors, that the children of the mill population are year by year getting smaller, and physically less capable of doing their work. He attributes this partly to their being the children of intemperate parents, partly to their being brought up on tea and coffee, instead of more substantial food, and partly to the circumstance that many young children, of about 12 years old, begin to smoke, acquiring the habit from their fathers, and possibly from their mothers.

**MEDICINAL PROPERTIES OF COFFEE.**—There are many medicinal virtues in coffee. When taken in moderation it is a gentle stimulus to the digestive organs. It relieves some forms of headache. It is excellent when one is fatigued or exhausted.

Very strong coffee will cure drunkenness. Many fashionable bar-rooms keep it made for that purpose. It is eminently useful to cure the habitual drinker, or those who wish to cure themselves of the habit of using intoxicating liquors. It will keep any one awake, and, therefore, should not be drank last before going to bed.

**DRINK WATER IN THE MORNING.**—If we would establish the habit of drinking water freely in the morning, soon after arising, commencing with small quantities, increasing gradually as we learn to relish it, until the chief portion taken during the day is before breakfast, it will promote the health to a much greater extent than it ordinarily does, eradicate disease from the system, and become a most decided luxury in time.

**FOR CHOLERA AND CHOLERA MORBUS.**—A correspondent of the *St. Louis Republican* furnishes the following hint which is timely, and may be worthy of trial:—"Make a weak ley from good wood ashes, about as strong as common tea. Drink after each meal about half a wine glass full of the above water, which I guarantee will prove a complete preventive against cholera morbus or dyspepsia. This can be given to an infant without injury. Whenever the bowels become lax, or unchanged, ley water should be freely used. In the year 1819 I passed up the Missouri river on the steamer Robert Campbell, William Eads, Captain. Two men died out of the cabin from 4 o'clock in the afternoon to 10 o'clock next morning. I consulted with Capt. Eads, and advised that he should put wood ashes in the drinking water, so that all the passengers would have a drink of it. He did so. This happened at Wakadaw Prairie. He had not another sick or complaining passenger from there to Council Bluffs, and I have conversed with him frequently since, and he told me he had always adopted that plan, and never had any sickness on his boat during the California emigration of that year. This simple medicine is in the reach of every body. When made and put in bottles it will last good for a year."

If you wish to have a healthy stomach do not wear a belt or any other thing in the form of clothing tight around your waist. Dyspepsia with girls and women is often caused by reason of tightness of clothing over the stomach. With men it is often caused by the high waistband on their pantaloons or drawers, worn tight about the body over the pit of the stomach. Let all your clothing be thoroughly loose at that point. Bad as tight clothing is on any part of the body, there is no place where it can be more productive of disease than at, or about, or over the stomach. The stomach needs plenty of room to act. Do not press it from without. If you do it will shrink to get away from the pressure. A great many persons have dyspepsia because they have contracted the stomach from without. Not having space enough in which to work healthy, it becomes so shriveled up that it is not large enough to retain what food the body needs for the maintenance of strength and health.

**TO REMOVE WARTS AND CORNS.**—*Home and Health* contains the following:—"Warts are not only very troublesome, but disfigure the hands. Our readers will thank us for calling their attention to the following perfect cure, even of the largest, without leaving a scar. It has been tested by the writer: "Take a small piece of raw beef, steep it all night in vinegar, cut as much from it as will cover the wart, and tie it on, or, if the excrescence is on the forehead, fasten it on with strips of plaster. It may be removed during the day and put on every night. In a fortnight the wart will die and peel off." The same prescription will cure corns.

**A CURIOUS MEDICAL EXPERIMENT.**—In Russia, not long since, it is said, some murderers were placed, without knowing it, in four beds where four persons had died of the cholera. They did not take the disease. They were then told that they were to sleep in beds where some persons had died of malignant cholera; but the beds were, in fact, new, and had not been used at all. Nevertheless, three of them died of the disease within four hours.

**COLORADO FOR ASTHMATICS.**—The last number of the *Medical and Surgical Reporter* mentions the case of a citizen of Detroit, who had for thirty years suffered intensely from asthma, recently migrating to Colorado, where he soon experienced a decided relief, and, after a stay of three or four months, found himself entirely cured. He regards the pure, rarified atmosphere of that elevated, non-malarious region as a positive antidote for asthma in all its forms.

**GENERAL PREVALENCE OF CANCER.**—Dr. Bliss, of Washington City, estimates the number of cures of cancer now under treatment in the United States at 100,000, with an average number of 6,000 deaths per week.

**WATERMELONS** are very injurious for debilitated and nervous people, but good for persons of full habits and torpid livers.

Those who use a plain, unstimulating diet, have little thirst.

**SLEEP** will do much to cure irritability of temper, peevishness and uneasiness generally. It will cure headache and neuralgia and brace up and make strong a weary body.



# Scientific Press.

W. B. EWER..... SENIOR EDITOR.

DEWEY & CO., Publishers.

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## SUBSCRIPTION AND ADVERTISING RATES.

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## San Francisco:

Saturday Morning, Sept. 23, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Sept. 20, 1871.—Legal Tenders buying 88; selling, 88½. Gold in New York to-day, 114½.

## Table of Contents.

Automatic Steam Pump—III.; The Loss of Quicksilver.....	177
MECHANICAL PROGRESS.—The Westfield Explosion—Differential Expansion; Art in Metal Work; Hammering and Squeezing Puddled Iron; Treatment of Steel.....	178
SCIENTIFIC PROGRESS.—Rust; The Employment of Indigo; A newly Invented Rail; Psychic Force; A New Light; Origin of Graphite.....	178
East Canon, Ophi District, U. T.; Grape Growers' Association of Sonoma, Napa and Solano Counties.....	179
MINING SUMMARY.—California, Nevada, Arizona, Colorado, Utah, British Columbia and Montana.....	180
Stock Market; Mining Shareholders' Directory, etc.....	180
Notices of Recent Patents; Andrews' Patent Gang Plow—III.; American Institute Fair, New York City; New Method of Utilizing South Carolina Phosphates.....	182
USEFUL INFORMATION.—Snakes in Ireland; Sunlight through the Blinds; How Scientific Men Work; The Carat.....	183
GOON HEALTH.—Remedy for Chronic Diarrhea; Butter and Worms; Cholera and Cholera Morbus; Colorado for Asthmatics.....	183
California State Fair; Roasting of Gold and Silver Ores; Assay of Gold.....	184
Improved Oar—III.; The Mechanics' Fair and Its Awards; Mining Claims; Patents and Inventions.....	185
Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.....	186

**THE MONT CENIS TUNNEL.**—A telegraph dispatch announces that this tunnel, one of the wonders of modern times, has been opened and that trains are passing through successfully. When first tried, a serious difficulty was met with from the fact that the smoke of the locomotives became so dense, through want of a current of air to carry it off, that the engineer and fireman were suffocated while passing through. This obstacle has been overcome by employing smoke-consuming locomotives. The work was inaugurated fourteen years ago, and has progressed since then without interruption. Running through the Alps, it is the means of facilitating travel between France and Italy. Modern inventions have so far increased the means of completing an enterprise of this kind, that it is to be hoped that our much-talked-of tunnel under the Sierra Nevada, estimated at between five and six miles in length, to be used by the Water Co. and the C. P. R. R., will be finished in a much shorter space of time, proportionally. To modern science and engineering skill, mountains and rivers, instead of obstructions, are only considered as mediums for the exercise of ingenuity and ability, and these two important enterprises will show which of the two, American or French engineering, excels.

Germano Sommeillier, the great Italian engineer, who was the first to project the tunnel through the Mont Cenis, and was finally entrusted with its undertaking, died a few days ago, at his home in the Savoy mountains, after having lived to see the successful completion of his task.

DEER are unusually numerous among the foothills of Los Angeles County.

## The California State Fair.

The Fair opened on Monday, and at the time of our writing (Wednesday) is considered more than an ordinary success.

The pavilion is well filled—above and below—notwithstanding its enlargement. We can only speak briefly of some of the features of the exhibition this week.

The fruit display of our own State with that from Nebraska, Kansas, Illinois, etc., attracts more than usual attention. The Nebraska fruit is notable for its large and fresh appearance.

The silk culturists present a more varied representation than formerly.

The display of horned and small stock at the grounds shows decided improvement, and affords much of interest for examination and comparison.

The plowing match was thinly attended, this morning. At the trial there was a new sub-soil gang plow, by Myers & Gammow, of Marysville; a 2-gang plow, and a large stubble single plow, by Hill & Knaugh, Marysville; a 2-gang plow and a single plow, by Matteson & Williamson, Stockton; a Napierville, (Illinois) single plow by O. C. Ely, agent, S. F.; and last, (but not least by any means) Thompson's Road Steamer, with a 7-gang plow, by Jones & Hewlett, of Stockton.

A general view of the exhibition shows decided advancement in agriculture, horticulture and stock raising in the State, and an increased determination for improvement in the same. Such evidences of encouragement after such a discouraging season, for most farmers in the State, is the subject of pleasant reflections, and we feel sure that this is but the beginning of better things in California husbandry.

## The President's Address

Was delivered to a large and attentive audience at the Pavilion on Monday evening, by Mr. Reed, who rendered an account for the seventh year of his stewardship. After alluding to the prosperous condition of the Association, under conditions most unfavorable for Agricultural industry, he passed to a brief review of some of the chief features of the present exhibition, and took occasion to comment somewhat severely on the neglect which was shown to dairy products in California—a State which presented more favorable conditions for such business than any in the Union.

He presented to his audience, as disgraceful to the intelligence, industry and financial common sense of California agriculturalists the fact that we are paying for the making and bringing 3,000 miles one hundred tons of butter a week—and all this while tens of thousands of acres of as good dairy lands as ever lay out door, and as many loving herds of the best dairy kine, united in calling young men to marry, milk the cows, make butter and get rich.

The speaker dwelt upon the importance of horses—the best of horses—horses of pure blood, easy pace, speedy trot and long endurance. Having presented some practical information on horses and horse-raising, Mr. Reed congratulated the audience upon the success of the Fair, and closed with a cordial welcome to one and all.

**AUSTRALIAN SPIDER.**—Mr. A. G. Bourd of the Southern Australian Telegraph party, says that spiders abound in great numbers in that part of the world—that in riding through the hush both rider and horse become covered with webs. He sends to the editor of the South Australian Register a specimen 6 or 7 feet in size, broken off while he was riding through the Mulga scrub. The fibre is as strong as silk and very tough when first taken. Immense quantities may be obtained. He heard that one of the advance parties had made the material into a cracker for their whips!

A BEET sugar enterprise is projected for Santa Clara.

## ROASTING GOLD AND SILVER ORES.

In Mr. Raymond's report on mines for 1870, page 356, he says of the Keith furnace: "The cardinal defect was in trying to desulphurize in a reducing flame, and in the time—one second." Some person in Virginia City calls Mr. Raymond's attention to the remark and propounds the following queries:

1. Is there any more reducing flame or effect in the Keith than in the Stetefeldt furnace, chloridizing or desulphurizing like the Reno furnace; that is using wood, and like Keith's—completing the operation in a second or two?

2. If so,—why?

3. Is there any possibility of desulphurizing or chloridizing in an upright shaft, with the proper condensing chambers, feeding the pulp with a blower, and thereby furnishing also the required draft?

Mr. Raymond's reply, which is given through the *Engineering and Mining Journal*, will be found of considerable interest to all who are engaged in smelting gold and silver ores. We append it in full as follows:

## Reply.

1. We cannot do better than to recommend to our correspondent a more extended perusal of the report to which he refers. He will find on pgs. 749-755 a full description of the Stetefeldt furnace together with a full explanation of the chemical reactions which take place in the furnace.

Of course Mr. Stetefeldt cannot accomplish an oxidation of sulphur, and its removal as sulphurous acid, except by the presence of oxygen in the furnace. He never attempted to do it. Mr. Keith, it appears, did make the attempt and failed.

The difference between an oxidizing and a reducing flame, is simply that the former contains an excess of oxygen which it is ready to yield to substances, which, at the prevailing temperature, have sufficient affinity for it. In order to oxidize the sulphur contained in pyrites, a good supply of free oxygen at a high temperature is requisite; this, Mr. Keith, probably through some defect in his apparatus, did not obtain. If he had used salt and supplied a sufficient amount of oxygen to his flame he would doubtless have obtained different results. Our correspondent must remember also that the Stetefeldt furnace is used for silver ores, and that the roasting is at the same time a chloridation. Mr. Keith's experiments were made with gold ores, and without the use of salt.

If gold ore mixed with salt were to be passed through the furnace at Reno, there is some doubt as to what the result would be. The chloride of gold is decomposed at a comparatively low temperature, so that it is exceedingly doubtful whether it would be formed at all. If it were formed and again decomposed the gold would probably be left in a good condition for amalgamation.

It has been suggested that the chloridation of the base metals might be accomplished and the gold simply freed from the pyrites and rendered easy of amalgamation. If this were possible, the copper, for example, could be lixiviated as a chloride, and saved. The heat, however, would probably decompose the base metal chlorides, as well as the gold chloride, and nothing would be gained.

Still it appears probable that salt might play a very important role in the desulphurization of gold ores by merely shortening the time necessary to complete the operation. The sulphuric acid of the sulphates formed in roasting would decompose the salt and unite with the soda—the heat being so high that the chlorine would not unite with either gold or copper. The salt in that case would only serve as an agent for the decomposition of the sulphates formed in the roasting, and to accomplish this purpose perhaps some better and cheaper agent might be found. If a piece of pure, bright gold be allowed to remain in a heated muffle for a few minutes, near a piece of pyrites, it will on removal, be found apparently unchanged, but inert with reference to quicksilver. Now, if we immerse the piece of gold for a short time in hydrochloric acid and again bring it in contact with quicksilver, amalgamation will commence at once, showing that something has been removed by the acid. It has been suggested, in conformity with such observations, that the main object in roasting gold ores is to free the small particles of the metal from a coating which prevents their contact with quicksilver. A simple roasting does not accomplish the removal of this coating, but only its conversion

into an oxide, which is still sufficiently strong and thick to prevent many of the particles coming in contact with the quicksilver. It is claimed that what is really wanted, to obtain good results in amalgamating roasted pyrites, is a cheap means of removing this coating of iron oxide. At a red heat, chlorine unites with iron and forms an exceedingly volatile chloride, which would pass out of the furnace with the products of combustion. It is considered probable, by many of our best metallurgists, that the chlorine set free from the salt would combine with the fine films of iron rust covering the gold, and the chloride becoming volatilized by the heat, the gold would be left bright and in an excellent condition for amalgamation. A few months' practical working would prove more than all the theorizing in the world, but the owners of the furnace have never had sufficient confidence in its adaptability for gold ores to be at the expense of a trial.

2. The reason for the superior oxidizing power of the Stetefeldt furnace is that proportionally more oxygen is admitted to the flame.

3. We do not doubt the possibility of constructing a furnace so that the finely divided ore could be blown in by a current of air from a blower. We fail to see, however, that this plan would possess any advantage over the method now employed at Reno, viz: sifting the pulp in at the top of the furnace and using a natural draft instead of an artificial one. The easy, cheap and effective manner in which the Stetefeldt furnace is fed constitutes one of its chief merits.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

When the gold is in a fluid state the mould must be placed on a level surface, and oil poured into it. To make a clean bar it will be found best to use considerable oil—pour in sufficient to cover the bottom of the mould to the depth of at least one-fourth of an inch. Turn the mould in such a manner as to allow the oil to flow to all parts of its interior, and then place it again level and in the position you wish it to occupy while you cast the gold. If the gold is clean, and the quantity less than 50 ounces, it is best not to attempt to skim it. Two spoonfuls of nitrate of potash ought to be added, and one of carbonate of soda, and the whole allowed to flow over the surface of the gold. When very hot, and the slag very fluid, lift the crucible from the furnace and with a bold and steady hand pour it into the mould, holding it for a little time in an inverted position to allow the last portion to flow from the crucible. The oil inflames and remains burning on the slag, which flows evenly on the surface of the gold. If the mould was clean, and of the right temperature, and if sufficient oil was used, a clean bar will result. A little practice will enable the operator to hit the exact conditions. The oil used should be a cheap animal oil; common whale oil answers every purpose. Lard oil is also well suited; coal oil is too inflammable as well as dangerous, and should never be used.

When cold, the bar falls easily from the mould; a slight tap with a hammer separates the slag, and the bar may be cleaned with water, and nitric acid, or if necessary, with sand and a suitable wash. A good way is to place the bar in the furnace until it becomes nearly red hot, and then quenching it suddenly in water. This will be unnecessary if proper precautions have been observed in preparing the mould.

When the gold is very impure—which is the case when in the form of retorted amalgam which has not been properly cleaned,—a different method of treatment should be adopted. A larger sized crucible will be required. Three or four times the amount of flux must be put in and a spoonful of carbonate of potash with it. A skimmer must be prepared by forming the end of a large wire about the size of a common lead pencil, into a spiral about a half inch in diameter, and bending it so that when the skimmer is let down vertically into the crucible, the spiral will lie flat upon the surface of its contents.

A bucket of water is set convenient to the furnace, and when the slag has become fluid and it is beyond question that the gold has become perfectly melted, the



skimmer is touched to the slag and gently moved from side to side; a portion of the slag adheres to the iron, the skimmer is removed and plunged into the water, and immediately replaced in the crucible; an additional portion attaches itself to the skimmer—which is again quenched in the water. This is repeated until a large portion of the slag is removed, and a new charge of flux, consisting this time of borax and nitrate of potash, is allowed to fuse down upon the surface of the gold. The first flux is removed from the skimmer by a slight blow from a hammer and the crucible is skimmed with it as at first. This must be repeated until all iron and other impurities have been removed, and the surface of the molten gold appears when exposed, clean and reflective as a mirror. It may then be poured into the mould as described before.

In large meltings it is customary always to skim the gold before pouring, and so far to remove the slag that any remaining portion may be left on the sides of the crucible, and the gold only allowed to flow into the mould; this requires some skill and considerable practice; as it is imperative that the bar should be homogeneous to ensure a correct assay; it is usual to mix it thoroughly before pouring. This is done in the large way by stirring just before lifting from the furnace. It may be done with an iron rod, with a piece of black lead held with the tongs or with a clay stirrer made for that purpose; which even if used it will be necessary to allow the stirrer to remain in the crucible until it has acquired the temperature of the fused gold; otherwise, a portion of the gold may attach itself to the rod and be removed with it. In small meltings it will be found sufficient to mix the gold by giving the crucible a rotary motion while holding it with the tongs, just previous to pouring. This must be done so quickly that the crucible has no time to cool.

For very small fusions it is best to use a small Hessian crucible, and when the gold is melted with plenty of flux, to set it aside to cool, and then break the crucible and separate the pieces of crucible and portions of slag by slight blows of a hammer on the edges of the bottom. It is very difficult to pour small quantities of gold without loss—by portions remaining on the sides of the crucible.

When the bar is clean, a small portion must be taken from different parts for assay. It is customary to cut from opposite corners with a cold-chisel; but this is extremely clumsy and in every way inconvenient. If the bar is brittle, a much larger piece may break off with the chip than is required. If the proper sized chip is cut off successfully it is likely to fly away, and either be lost, or if found its identity is doubtful. The proper way is to bore into the bar in different parts with a small drill. This may be done in a lathe, or by means of a ratchet drill. In any case the bar should be placed in a clean copper pan so that no loss may occur, the surface borings resulting from the first revolution of the drill should be rejected. Those that follow to the extent of a little more than a grain are to be placed in a suitable vessel and carefully preserved for assay. Before cutting or boring the bar the number of the assay should be stamped upon it, and the same number placed with the clippings. This number should represent the bar through every stage of the assay by which its value is ascertained. Some assayers stamp the initial of their name in the cut faces so that no portion can be removed after it leaves their hands.

[To be continued.]

**SAWMILLS IN OREGON.**—The *Oregonian* gives the number of sawmills in operation in each county in that State, which foot up a total of 173, about one-quarter of which are driven by steam—the balance by water. The capacity of these mills is estimated at 1,200,000 feet of lumber per day. The largest of the number is located at Milwaukie, owned by the Oregon and Central Railroad Co., and has a capacity of about 140,000 feet per day. This list is supposed to be quite incomplete; and aside from those here enumerated are quite a number of mills situated on the Washington side of the Columbia, but which supply much lumber for Oregon, and for many vessels engaged in the Oregon trade.

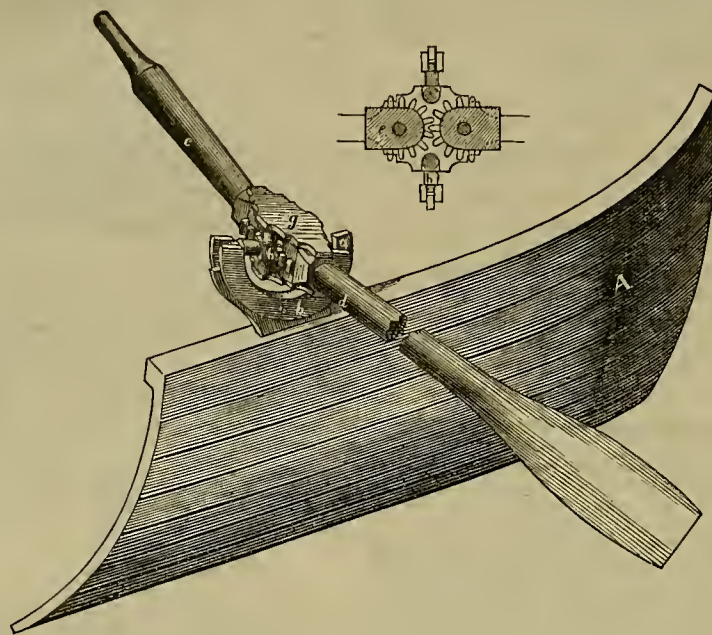
**THE WILD GEESSE** are migrating southward rather earlier than usual—an indication of an early setting in of the rainy season.

### An Improved Oar.

We give herewith an illustration of an invention which is likely to popularize still further the already favorite amusement of rowing.

In the ordinary method the oarsman is obliged to sit with his back in the direction of his boat's course, and consequently if he has no one to steer the boat, he must either run the risk of frequent deviations from his course, and an occasional collision, or be subjected to the alternative of constantly looking over his shoulder, which is very tiresome. Although the practiced oarsman can direct his boat with little difficulty, yet the majority of amateurs will be inclined to favor the new invention if it is made to work to their satisfaction.

With this explanation we will proceed to describe the engraving, which represents a portion of the side or gunwale of a boat having a semi-circle of metal, *a*, secured to it, as shown. Another semi-circle *b* is formed with flanges and fits into the first one so



PRINGLE & WOOD'S IMPROVED OAR.

that the oar can be turned in the hand or feathered, as it is called, after completing a stroke and while reaching for another. The oar itself is formed in two parts, *c*, *d*, which meet just over the gunwale, and are each fitted with a metal cap, *e*, which has teeth on its outer curved end, as shown in the small figure.

Pivots from these caps extend into the plates, *g*, which lie above and below the joint, so that when the handle of the oar is pulled in one direction the blade will by means of the gearing be made to move in the same direction, thus propelling the boat in the direction to which the operator faces. The inner end of the oar is depressed and the outer end elevated at the termination of a stroke and the oar turns on pivots, *n*, shown at each side.

The inventors, Thomas Pringle of New York, and John Wood of this city, are desirous of disposing of their interest, either wholly or in part, for this coast. Any further information can be had by calling on or addressing Mr. John Wood, 135 Folsom street, San Francisco, where a model can be seen.

**IN MEMORIAM.**—Passed on from this life, in Washington, D. C., September 18, 1871, Mrs. Eliza Dewey Sweeney, widow of the late Hugh Bernard Sweeney, and sister of Edw. M. and A. T. Dewey, of California. She leaves two daughters. Although personally departed, the influence of her noble mind will ever shine with brightness in our pathway on this side of the border.

## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING SEPT. 5.

**BED LOUNGE.**—Althor Frederick Bonten, San Francisco, Cal., assignor to himself and Farrell Jerome O'Reilly. Antedated August 11, 1871.

**CHURN.**—Elias Groat, Napa, Cal.

**CHURN.**—Elias Groat, Napa, Cal.

**MEDICAL COMPOUND.**—Benigno Gutierrez, Santa Barbara, Cal.

**NOTE.**—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

### Mining Claims.

The following important instructions have been received by the Register of the

person forming such association in the manner hereinbefore described.

You will notify all applicants accordingly, informing them that no patents will issue upon any application already made and pending, or which may hereafter be made for mineral claims, in default of a compliance herewith. Very respectfully, your obedient servant,

WILLIS DRUMMOND, Commissioner.

### The Mechanics' Institute and Its Awards.

**EDITORS PRESS:**—At the close of the late Fair of the Mechanics' Institute, President Halldie stated that it was not probable another Fair would be held for some years. This can scarcely be a subject for regret, as the late Fair was confessedly not a good representation of the industries of the Pacific Coast. As a promenade for ladies and gentlemen in the evening it was a success; but for the purposes announced it was a failure. Very few exhibitors of former years, except those who had goods which they wished to advertise, appeared at this Fair, and a great number who had an eye to the awards were there who had never exhibited before, and were not familiar with the principles governing the distribution of awards as adopted in this Institution.

The action of the Board of Managers at the late Fair will have a tendency to destroy whatever confidence may have existed in their system of awards. It makes a Californian blush, that an Institution which is supposed to represent the industries of the State, should, after granting a premium in accordance with the recommendation of an examining committee of its own appointing, and after announcing it through its President, attempt to take it away.

It puts one in mind of a custom that formerly prevailed in some portions of England, where, if a widow who inherited lands from a deceased husband, should neglect the observance of a certain commandment, she was compelled, in order to regain her lands, to ride into court on the back of a black ram, and to repeat the following, or words to that effect:—

"Here I am upon this black ram,  
Weak woman that I am;  
For this world's gain  
I have done this shame,  
I pray you let me have my land again."

Not only this was done, but in other cases, after the Examining Committee had made their recommendation, and the "Committee of Three" had made the same recommendation, changes were made by the Managers, discriminating against California productions.

Until such abuses are corrected, the public who know how affairs are conducted will have no confidence in any awards of the Mechanics' Institute.

The receipts at the Fair were about \$60,000, and the full value of all of the awards was not to exceed \$2,500. Cash premiums were announced amounting to \$3,350, of which only \$700 were awarded. And now, after clearing more than \$30,000 above all expenses, we find the Managers could not afford to pay a premium which their chief officer had publicly announced.

What motive could have induced the Managers to go behind the recommendation of their own Committees? It must have been a very strong one. Had they rested on the action of their Committees, as they announced in their circular they would do, no error in the judgment of the Committee would have affected them. I am credibly informed that articles in which the officers had an interest were taken from one Committee who were not allowed any first premiums, and given to another Committee which was allowed to recommend first premiums. With such practices as this, although no wrong might have been intended, confidence in the Mechanics' Institute will remain at a low ebb.

San Francisco, Sept. 20, 1871.

**LOSS OF QUICKSILVER.**—We would call especial attention of our mill men to the communication of Mr. A. B. Paul, upon the loss of quicksilver, which will be found in another column. The subject which he presents is one of the highest importance, and the information which he solicits, will be considered strictly confidential, and will in no case be made public, or even communicated to any second party. It will be used by him, alone, and only as a means for deducing such generalizations as will lead to the suggestion of means for considering such losses in future. We know of no man who would be better able to make a proper use of such information than Mr. Paul. Whatever deductions or suggestions he may make will be published in the SCIENTIFIC PRESS for the benefit of all. We trust our mill men will give a free and unreserved response to his queries.

**CATTLE FROM SAN JOAQUIN.**—A band of 1,000 head of cattle, belonging to Mr. Anderson, arrived at Winnemucca, Nevada, on Friday of last week, on their way to Idaho, from San Joaquin County in this State.



## DOMESTIC ECONOMY.

### How to Carve.

It is a great accomplishment to be able to carve well and easily, without awkwardness; but it is one that receives altogether too little attention. Too often, it would seem that whoever is called upon to perform this table duty, has no idea of there being anything needed but to hack off in the most expeditious manner as much meat as is required to satisfy the wants of those present, without the slightest reference to the mode in which it should be done, or the choice hits to be secured by careful carving. We have seen those who in every other respect were real gentlemen and ladies, carve poultry or a piece of meat, in such a barbarous manner as to banish all desire to eat, and almost the ability to taste the big uncouth, mangled lump that was put or rather thrown on our plates. To cut off a thick, rough piece from any part that the knife happens to light upon first, aside from being untidy and unpalatable, is also very wasteful. After two or three such careless cuttings, the whole piece is so defaced and uneven, that it is no longer possible to secure a decent looking hit; and the bone is left with much adhering to it in ragged morsels, that dry and become worthless if left over to the next day, but which, had the joint been properly carved could have been sent to the table for a cold relish for tea, in a neat and attractive form.

Our ladies are seldom good carvers, and do not often attempt it. Few have been taught, or thought it worth while to try and learn; but in early times it was considered an indispensable part of a girl's education. The want of such knowledge often leaves one in an unpleasant and embarrassing position; for to every one there occasionally comes a time when the gentleman of the family must be absent, and the lady must do the carving, or ask a guest or stranger, who may be more awkward than herself.

To stand up while carving is not as proper or as skillful a way of doing the work as to be seated; but it is sometimes easier and more convenient, and, if the table be at all crowded, less troublesome to guests. In such cases it is quite allowable.

The carving knife must be sharp and thin. A large, broad-bladed knife is needed for meats; a long, narrow, and sharp pointed blade for poultry and game; both should be kept in perfect order, and always ready for use.

### How to Carve Poultry.

When dished, poultry and game must be laid on the hack, the breast uppermost, for the greater convenience of the carver, who should put the fork into the breast, holding the bird firmly until he has taken off the wings and legs, cut out the "merry thought" or "wish bone," cut nice, even slices from the breast, and removed the collar bone. A skillful carver will do all this without once turning the fowl over. Next cut off the side bone, and cut down the back dividing the carcass in two. Separating the drumstick from the second joint, and in helping a lady, if she prefer the wing, cut in two parts that she may handle it more conveniently.

### To Carve a Leg of Mutton.

A ham, or leg of lamb or mutton, should be first cut in the middle clean down to the bone, passing the knife all round. Then cut thin, even slices from the upper or thicker part, separating each slice from the bone at the bottom, carefully, without tearing it. Some slices can also be cut from the lower part of the leg or ham, which are just as good as the upper part; but after a little you come to the cords or fibres, and then the remainder of the lower part should be set aside, to cut out all the little bits for a relish at tea, or, in ham to chop up as seasoning, or, with scraps of other kinds of meat for hash. By cutting meat in this way much may be saved. Good carving is good economy.

In carving a forequarter of lamb, divide the shoulder from the ribs; then separate the ribs; and in carving the hindquarter, serve a bit of kidney and fat with each piece, if agreeable to your guests. Some people dislike the kidney, and would eat with more relish if it were not on their plate. The forequarter of pork and mutton should be carved in the same way.

### A Fillet of Veal, Etc.

In carving a fillet of veal, begin at the top to cut, serving a portion of the dressing to each guest. When carving the breast of veal, cut the upper portion of the

brisket, or that part of the breast that lies next to the ribs separately, and in helping, inquire what part is preferred.

The middle portion of hoiled tongue is the best, and should be first served to guests. The tip is only fit for hashes. It should always be cut crosswise, never lengthwise.

When dishing a sirloin, place it on the platter with the tenderloin underneath, and in carving cut thin slices from the side next to you; then turn the piece over, and carve the tenderloin carefully, serving equally from both parts.

Some like to send a young pig whole to the table, with a lemon or a bunch of parsley put into the mouth. We think it much nicer to take the head off and cut the pig in halves or quarters before sending it to the table, and then carve it. It would be very unpleasant to many to see such a revolting caricature of a *live pig* brought before them. But each one must judge for himself.—*Mrs. Henry Ward Beecher.*

**PLEASE EXPLAIN.**—Will the Editor of the PRESS please explain the philosophy of the following occurrence, and oblige a

HOUSEKEEPER.

A Western lady recently met with a serious mishap. While the soap she was making was boiling at a lively rate, she turned into the kettle a quantity of cold lye, when the contents exploded with great force, scalding the persons present in a shocking manner. The explosion was instantaneous and so powerful as to leave the kettle entirely empty.

We are not sure of our ability to "explain;" but if the occurrence took place as stated, we should suppose that the temperature of the "boiling soap" was so much above that of boiling water, that when the water was poured into the kettle, it was so rapidly converted into steam that an explosion was the consequence; much as the same occurrence takes place, when water is poured upon melted iron. We do not know the temperature at which soap boils; but our impression is that it must be much above the boiling point of water; else the above explanation cannot be correct.

### Something New—A Water-Proof Starch.

A patent has been recently taken out in France for the preparation of a finish, or starch, for vegetable tissues, yarns, clothes, etc., which is not soluble in water, and which, therefore, when once applied, will remain throughout several successive washings. In this case, the articles in question are properly starched and then placed at a temperature of about sixty degrees Fahrenheit through a bath of chloride of zinc, by means of which such a change is produced in the fibre and the starch that the latter resists the action of the water in the most thorough manner. A bath of three parts of sulphuric acid and one of water, may, it is said, be used instead of that of chloride of zinc. The liquid is to be placed in a trough, in which a revolving barrel is immersed, almost to its axis, and above which is a roller which is moved in an opposite direction by the turning of the lower one. Between the two the material to be impregnated is passed, being moistened from below by the bath, and in passing between the two, receiving the necessary pressure. If the material be heavy, the barrel lies entirely in the bath, and a pair of rollers fixed above it is used to press out the superfluous liquid. The articles are carried directly from the trough into running water, from which they are to be removed, pressed out and dried.

**TO MAKE SOUP TABLETS.**—The *Chemical News* gives us from the German Manuals of Pharmacy the following receipt, by Reinsch, for making the soup tablets so much in use in the German army during the late war. The formula is as follows: Take eleven parts by weight of good suet, melt it in an iron pan, and make it very hot, so as to become brown; add, while keeping the fat stirred, eighteen parts of rye meal, and continue heating and stirring so as to make the mass brown; add then four parts of dried salt and two parts of coarsely pulverized caraway seed. The mixture is then poured into tin pans somewhat like those used for making chocolate into cakes. The cakes have the appearance of chocolate, and are chiefly intended for the use of soldiers while in the field. A quantity of about one ounce of this preparation is sufficient to yield, when hoiled with some water, a ration of good soup, and in case of need, the cakes being agreeable to the taste, may be eaten raw.

### Domestic Receipts.

**BAKING CAKE.**—Here is a simple way of preventing cake from sticking to the tins in which it is baked. Grease the tins thoroughly, then put in a handful of flour, shake it all over the inside of the dish, in which you bake; then, after turning it upside down, strike it on the edge of your flour bowl; that will free all that does not adhere to the grease. Now put in the dough and your cake will "come out" nicely.

**TO CLEAN LOOKING-GLASSES.**—Take a newspaper, fold it small, dip it in a basin of clean cold water. When thoroughly wet, squeeze it out as you do a sponge; then rub it pretty hard all over the surface of the glass, taking care that it is not so wet as to run down in streams; in fact, the paper must only be completely moistened, or dampened, all through. Let it rest a few minutes, then go over the glass with a piece of fresh newspaper, till it looks clear and bright. The insides of windows may be cleaned in the same way; also spectacle-glasses, lamp-glasses, etc. White paper that has not been printed on is better;—but in the absence of that a very old newspaper, on which the ink has become thoroughly dried should be used. Writing paper will not answer.

**PRESERVED WATERMELON RINDS.**—Cut the rinds into squares about an inch thick; boil in alum water a few minutes; then rinse in cold water, and drain. Make a syrup of equal weight of white sugar; boil until clear. When cool, add a little essence of ginger, or what is better, when the preserves are to be used, add a little extract of lemon.

**ONION SOUP.**—Alexander Dumas recommended onion soup as an infallible remedy for nervous prostration, headache, and debility. He prepared his soup, which has become quite famous among the gourmands of the French capital, of cream and onions.

**SUNDERLAND PUDDING.**—Six eggs, whites and yolks beaten separately; one pint of sweet milk or cream; three tablespoonful of wheat flour; a little salt. Add the whites lastly. Bake twenty-five or thirty minutes.

**GRAHAM BREAD.**—Two cups of sweet milk, two cups sour buttermilk, one-half cup molasses, one teaspoonful of soda, with unbolted wheat meal to make a stiff batter. This cannot be heated for bread.

**APPLE JELLY.**—Slice apple without paring, hoil till tender, then strain, and take  $\frac{3}{4}$  pints of juice to one pint of sugar; hoil about twenty minutes.

### Mechanical Hints.

**TO MAKE TUNGSTIC GLUE.**—Tungstic glue hides fair to be an acceptable substitute for hard india rubber, now so high in price. It is prepared by mixing a thick solution of glue with tungstate of soda, and hydrochloric acid, by means of which a compound of tungstic acid and glue is precipitated, which at a temperature of 86 to 104 Fahrenheit, is sufficiently elastic to admit of being drawn out into very thin sheets. On cooling, this mass becomes solid and brittle, and on being heated is again soft and plastic. This new compound, it is said, can be used for all the purposes to which hard rubber is adapted.

**HOW TO RENOVATE WORN OUT FILES AND RASPS.**—Boil the file in a very strong solution of soda, or, what is better still, soap-boilers' soap lees, which removes all the inherent dirt. It must then be allowed to remain for about half a minute in a solution composed of two parts of water and one part of nitric or muriatic acid; and after that washed with water, and slightly brushed over with oil of turpentine. To show the efficiency of the diluted acid in producing a keen edge on instruments, dip therein a round pointed needle, or worn knife, and the result will be satisfactorily seen.

**MARINE GLUE.**—The following receipt is said to be an excellent one:—Take of coal naphtha, 1 pint, pure (not vulcanized) rubber, 1 ounce, cut in shreds; and macerate for 10 or 12 days, and then rub smooth with a spatula on a slab; add at heat enough to melt, 2 parts of shellac by weight, to one part of this solution. To use it, melt at a temperature of about 248° Fahr.

The cabs in New York City are painted dark red, and striped sparingly with black. Vermillion broad lines, and carmine glazed on vermillion, are still used to some extent. Blue on panels, and for broad lines on the carriage part, may be occasionally met with.

If a coat of varnish be not rubbed down level, and freed from all grit and scratches, it may not be expected of the next coat that it will be perfect.

## LIFE THOUGHTS.

WHAT is virtue but a medicine and vice but a wound.—*Hooker.*

THE childhood shows the man as morning shows the day.—*Milton.*

ETERNAL life is spiritual substance, present and incident to the possessor.—*E. H. Chapin.*

THE mere learning of language is like expending one's money for handsome purses.—*J. P. Richter.*

REAL happiness is cheap enough, yet how dearly are we in the habit of paying for its counterfeit.—*Ballou.*

WOE to the physician who does not do his best for the beggar, just as for the millionaire.—*E. E. Hale.*

THE measure of civilization in a people is to be found in their just appreciation of the wrongfulness of war.—*Arthur Helps.*

EVERY newly discovered truth judges the world, separates the good from the evil, and calls on faithful souls to make sure of their election.—*Julia Ward Howe.*

If you can but give to the fainting soul at your door a cup of water from the wells of truth, it shall flash back on you the radiance of God. As you save, so shall you be saved.—*Conway.*

HE who begins by loving Christianity better than truth, will begin by loving his own sect or church better than Christianity, and end by loving himself better than all.—*Coleridge.*

### Singleness of Object.

In the work of life, the great secret of success in any undertaking lies in a concentration of one's powers upon a single object. One may have talent and wealth, but if he has no well-defined object, toward which all his energies are bent, the world would be nearly as well off without him. There is a beautiful illustration of this principle in the burning glass. A single ray reflected from its surface is almost imperceptible in its effects; but when many are concentrated upon a common point, they produce a heat so intense as to fuse the hardest metals.

Perhaps there are men who have succeeded in more than one kind of business, but are there not scores all around us who have failed? Again there are those who, after years of toil and application to a single object have made but little advancement. Is the fault in the effort, or in the object? Have they not cherished some pet scheme in opposition to their own reason, some wild theory without foundation? Is it right to bring up, as evidence, the case of a man who has spent his whole life in an attempt to discover perpetual motion, or in some other pursuit equally absurd, and call it a failure? This is "hobby-riding" not an earnest attention to business.

**HOW SOON FORGOTTEN.**—So lately dead; so soon forgotten. This is the way of the world. Men take us by the hand, and are anxious about the health of our bodies, and laugh at our jokes, and we really think like the fly on the wheel, that we have something to do with the turning of the earth. Some day we die and are buried.

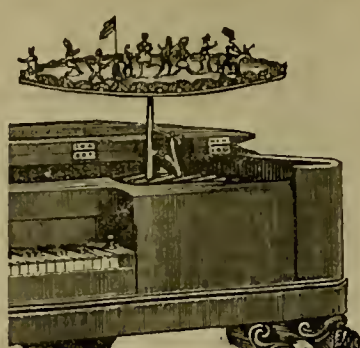
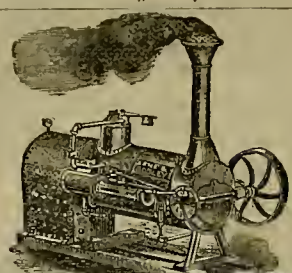
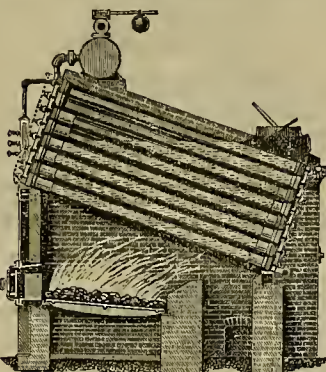
The sun does not stop for our funeral; everything goes as usual; we are not missed in the street; one or two memories still hold our names and forms; but the crowd moves in the daily circle, and in three days the great wave of time sweeps over our steps and washes out the last vestige of our lives.

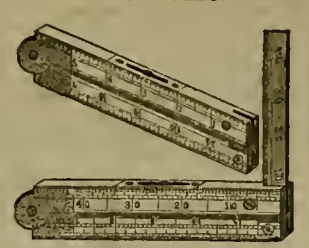
**HOW TO KEEP A SITUATION.** Lay it down as a foundation rule, that you will "be faithful in that which is least." Pick up the loose nails, bits of twine, clean wrapping paper, and put them in their places. Be ready to throw in an odd half an hour or hour's time when it will be an accommodation, and don't seem to make a merit of it. Do it heartily. Though not a word he said, be sure your employer will make a note of it. Make yourself indispensable to him, and he will loose many of the opposite kind before he will part with you. Those young men who watch the time to see the very second their working hour is up—who leave, no matter what state the work may be in, at precisely the instant—who are lavish with their employer's goods will always be first to receive notice that times are dull, and their services are no longer required.—*Workingman.*



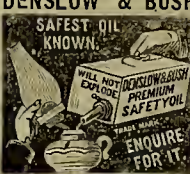
**WORK.**—There is a perennial nobleness and even sacredness, in work. Were he never so benighted, and forgetful of his high calling, there is always hope in a man that actually and earnestly works; in idleness alone there is perpetual despair.



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place where not for sale. 8-v23-3t  
**Travelers' Guide.**  
**CENTRAL PACIFIC RAILROAD.**  

Passenger	Express	SEPT. 4,	Express	Passenger
excepted	Daily.	1871.	Daily.	Sundays
4.00 P M	8.00 A M	San Francisco	5.45 P M	12.30 P M
4.42 P M	8.40 A M	Oakland	5.12 P M	11.48 P M
5.30 P M	7.30 A M	San Jose	5.30 P M	12.15 P M
8.28 P M	12.25 P M	Stockton	1.28 P M	7.42 P M
10.30 P M	2.10 P M	Sacramento	11.45 A M	6.00 A M
	4.10 P M	Marysville	9.10 A M	
	7.50 P M	Sosoma	5.40 A M	
	2.30 P M	Sacramento	11.45 A M	
	5.25 P M	Colfax	8.45 A M	
	1.15 A M	Reno	1.00 A M	
	3.10 A M	Winnemucca	4.05 P M	
	12.40 A M	Battle Mountain	1.25 P M	
	4.40 P M	Elko	8.45 A M	
	6.20 A M	Ogden	5.20 P M	

  
**SAN JOSE BRANCH.**—Leave San Francisco at 9.10 a.  
m. daily (except Sundays), and 3 p. m. daily. Returning  
leave San Jose at 7.30 a. m. daily, and at 3.50 p. m., daily  
(except Sundays).  
**OAKLAND BRANCH.**—Leave San Francisco, \*6.50,  
8.00, 9.10, 10.20 and 11.10 a. m., 12.00, 1.50, 3.00, 4.00, 5.15, 6.30, 8.30  
and \*11.30 p. m. (10.20, 11.10 and 3.00 to Oakland only).  
**LEAVE BROOKLYN,** \*5.15, \*6.30, 7.40, 8.50 and 10.00 a. m., 1.30,  
2.40, 4.45, 6.10, and 10.10 p. m.  
**LEAVE OAKLAND,** \*5.25, \*6.40, 7.50, 9.00, 10.10, 11.00 and 11.50  
a. m., 1.40, 2.50, 3.50, 5.05, 6.20 and 10.20 p. m.  
**ALAMEDA BRANCH.**—Leave San Francisco, 7.20, 9.00,  
and 11.15 a. m., 1.30, 4.00, 5.30 and 7.00 p. m. (7.20, 11.15 and  
5.30 to Fruit Vale only).  
**LEAVE HAYWARD,** \*4.30, 7.00 and 10.45 a. m., and 3.30 p. m.  
**LEAVE FRUIT VALE,** \*5.25, 7.35, 9.00 and 11.20 a. m., 1.30,  
4.05 and 5.30 p. m.  
Sundays excepted.  
**CALIFORNIA PACIFIC RAILROAD.**  

4.00 P M	8.00 A M	San Francisco	11.30 A M	7.30 P M
5.50 P M	9.45 A M	Vallejo	9.45 A M	5.45 P M
8.00 P M	12.45 P M	Orinda	7.30 A M	2.45 P M
9.30 P M	2.15 P M	Marysville	6.30 A M	1.00 P M
8.15 P M	12.15 P M	Sacramento	7.30 A M	3.30 P M

  
One train Sundays—leaving San Francisco 8.30 a. m.  
**SAN FRANCISCO & N. PACIFIC R. R.**  

*8.30 A M	*3.30 P M	San Francisco	*10.30 A M	*7.00 P M
10.15 A M	5.50 P M	Donahue	8.12 A M	4.45 P M
10.35 A M	6.10 P M	Petaluma	7.50 A M	4.20 P M
11.19 A M	6.55 P M	Santa Rosa	7.30 A M	4.00 P M
12.00 A M	7.40 P M	Healdsburg	6.30 A M	3.00 P M

  
\*Sundays excepted. \*Sundays only.  
**CAL. P. R. R. CO.'S STEAMERS.**  

*5.00 P M	*4.00 P M	San Francisco	*12.30 A M	*8.00 P M
6.30 P M	5.30 P M	Benicia	10.30 P M	6.00 P M
2.00 A M	2.00 A M	Stockton	4.30 P M	
		Sacramento		12.00 m.

  
\*Sundays excepted.  
**T. H. GOODMAN,** **A. N. TOWNE,**  
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.  
**UNION PACIFIC RAILROAD.**  
Running from Ogden, Utah, to Omaha, Nebraska—over  
one thousand miles, without change of cars.  
**MAKING DIRECT CONNECTIONS**  
AT OGDEN with the CENTRAL PACIFIC R. R. (from San  
Francisco); also with the Utah Central R. R. to Salt Lake  
City.  
AT CHEYENNE with the DENVER PACIFIC R. R., for  
Denver City and the Mining Districts of Colorado.  
AT OMAHA, for Chicago, Eastern and other cities, with  
the Chicago and Northwestern; Chicago, Rock Island and  
Pacific; Burlington and Missouri River; St. Joseph and  
Council Bluffs Railroads; also, for St. Louis and all South-  
ern cities.  
PRESS TRAINS RUN DAILY.—The U. P. R. use  
the Westinghouse patent air brake; Miller's patent truss  
platform and elastic car-coupler; and the most approved  
construction of cars for the comfort and safety of passen-  
gers.  
PULLMAN'S MOST MAGNIFICENT PALACE SLEEP-  
ING CARS attached to express trains.  
**T. L. KIMBALL,**  
General Passenger Agent, Omaha.



## AWARD OF PREMIUMS.

The following is the complete and corrected list of Premiums awarded by the Mechanics' Institute to the most successful exhibitors at the late Fair:

## Gold Medals.

1. California Silk Factory; Raw, Spool and Twist Silk. Their manufacture.
2. Mission Candle Works; assorted California made candles.
3. Alvarado Beet Sugar Company; sugars from the beet root. Their manufacture.
4. Mission and Pacific Woolen Mills; display of blankets and knit goods. Their manufacture.
5. Jonathan Kittredge, California made safes.
6. Vanderslice & Co., California made silverware.
7. Jacob Zech, California made pianos.
8. Pollard & Carvill Manufacturing Co.; clarences.
9. B. N. Bugby, exhibit of wines and brandies from foreign grapes. His manufacture.
10. J. H. Culver, machine for cutting twist mouldings, California invention and manufacture.
11. Pacific Stone Company, artificial manufactured stone.
12. Pacific Wood Preserving Company, process of preserving wood.
13. William Betts & Co., California made carriage springs.
14. S. M. Brooks, painting.
15. Cheney Bros.; American Dress Silke.
16. A special gold premium for display of statuary, to P. Mezzara.
17. Severance, Holt & Co.; Diamond Drill.
18. Weed & Kingwell; Brass Goods, Bells, etc.

## Silver Medals.

1. E. W. Mitchell & Co., California-made angers.
2. W. K. Deitrich, bams, bacon and lard.
3. San Francisco Gae Company, manufactured ammonia.
4. James Hatch, for scroll work.
5. San Francisco Last Company, California-made lasts.
6. Craig & Savage, burial caskets.
7. Electrical Construction and Maintenance Company; electrical and telegraphic apparatus.
8. George D. Morse, colored photographs.
9. Carmen Island Salt Company, salt.
10. Pacific Pottery Company, pottery ware.
11. Pacific Glass Works, green glass ware.
12. Oakland Cotton Mills, burlaps and twines.
13. Eberhardt & Lachman, wines.
14. J. M. Eckfeldt, wire goods.
15. J. P. Goodwin & Co., furniture.
16. Charles O. Farcoit, milling lathe.
17. E. K. Howes & Co., wooden ware.
18. San Francisco Glass Company, white glass ware.
19. Main & Winchester, harness and saddles.
20. Haynes & Lawton, plated ware.
21. C. E. Watkins, photographic views.
22. Kimball & Co. general display of carriages and buggies.
23. California Powder Company, rifle and sporting powder.
24. Giant Powder Company, for giant blasting powder.
25. John Roach, mathematical instruments.
26. W. D. Hooker, hand pumps.
27. Buckingham & Hecht, boots and shoes, California manufacture.
28. Nelson & Dohle, for display of steel tools, their manufacture.
29. Howell & Low; "Harvest Queen" Harvester. California invention and manufacture. 1st premium.
30. D. Samuels, glove manufacturing.
31. Stow Pavement Company, wood pavement.
32. Will & Finck, special display of cutlery.
33. M. Price, general display of cutlery.
34. H. G. Hanks, display of minerals and fossils.
35. To Pioneer Ramie Plant, J. S. Finck.
36. To Oregon Woolen Mills, special silver medal for cassimeres; 1st premium.
37. T. C. Jameson, has reliefs.
38. E. McGrath, marble mantels.
39. Knillman, Wagner & Co., leather display; 1st premium.
40. N. Seibert, Eureka Lubricator, a California invention.
41. Pacific Saw Manufacturing Company, best exhibition of circular saws.
42. Travis & Wagner, burr mill-stones.
43. Hill & Knaugh, gang plows.
44. J. G. Denny, marine painting.
45. Wm. L. Marple, landscape painting.
46. Misses Crane & Curtis, designing and engraving on wood.
47. Deacon & Co., for steam engine, special silver medal; 1st premium.
48. To the Women's Co-operative Union.
49. To the San Francisco Plating Works.
50. To Dr. A. Blatchley; for Light Percussion drill (California Invention of Merit).
51. To Roach & Formhals; apparatus for condensing volatile metals.

## Diplomas.

- D. A. Faulkner; punching machine.  
Pacific Rolling Mill; display of wrought iron; special.  
Thos. H. Selby & Co.; lead pipe and shot; special.  
Rosenbaum & Co.; mirrors.  
Job M. Seamans; jewelry.  
Kohler, Chase & Co.; best cabinet organs.  
Pacific Oil and Lead Works; lead, oils, etc.; special.

- Wm. McKibben; metallic wheelbarrows; 1st premium.  
Calvin Nutting & Co.; metallic wheelbarrows. 2d premium.  
Savage & Son; Empire range; 1st premium.  
John Payne; forged and finished nuts.  
G. A. Loyd; double-action spring hinge.  
E. C. Hurlburt; patent com. door lock.  
J. Scott; Sargeant Greenleaf lock.  
Albert H. Laws; improved hinge.  
J. Weichart; mower and reaper knives.  
Emil Boesch; lamps, lanterns and reflectors.  
Whiting & Murbar; window fastening.  
Merrill & Samuels; safety lamps.  
Swan, Dunbar & Co.; samples wooden boxes.  
W. H. Jessup; bent wood school desks.  
Jacob Strahle; billiard table; 1st premium.  
Geo. E. Phelan; billiard table; 2d premium.  
E. C. Hurlburt; invalid's bed.  
J. T. Palmer & Co.; cabinet of minerals.  
H. Liches; display of furs.  
S. P. Taylor; display of paper.  
Bradley & Rulofson; display of large and plain photographs.  
Bradley & Rulofson; best cabinet photographs.  
N. M. Klain; best photographs of buildings.  
Houseworth & Co.; photographic views.  
Geo. W. Shourds; engraving on wood.  
J. W. Taher; large plain photographs, 2d pr.  
H. Royer; leather belting.  
Hall's Basket Co.; display of willowware.  
Finger Bros.; display of brushes.  
August Friedhofer; beer barrels.  
J. J. Knowlton & Co.; California inks.  
Mrs. E. W. Cowles; bonnets and hats.  
Mrs. Barringer; method of cutting clothing.  
Miss Katie Conner; pretty shirt, made by hand.  
Mrs. E. Morris; display of gent's furnishing goods.  
Mrs. O. Van Deusen; down capes and collars.  
Miss E. J. Cryer; worsted work.  
Miss M. J. Graham; tapestry picture.  
Mrs. H. A. Williams; needlework. (Sutter's Fort.)  
Miss Dick; tapestry and embroidered handkerchief.  
J. C. Moody; improved tuck marker.  
Pacific Straw Works; straw goods.  
T. Rodgers Johnson; naval and military goods.  
M. J. Morgan; collars, cuffs, etc.  
Alexander Mackey; rag carpet.  
Mrs. E. F. Pauline; fancy costumes.  
Mrs. A. Cards; pillow cases, etc.  
Mrs. E. F. Pauline; fancy quilt.  
Miss M. Gibbons; parlor screen.  
Miss E. Whipple; afghan.  
G. E. Goodwin; anti macissars.  
Mrs. Chamberlain; silk quilt. (log cabin.)  
Miss P. V. Gibbs; chenelle work.  
E. E. Walker; worked baby shirt.  
Mrs. E. Bartlett; bed quilt.  
Mrs. E. Pritz; zephyr and worsted rug.  
Mrs. E. C. Hurlburt; tatting.  
Miss Addie Hyatt; silk quilt.  
Mrs. E. Minton; basket of worsted work.  
Miss S. A. Nichols; handkerchiefs and collars.  
Mrs. Phoebe Paul; silk cushion and quilt.  
Mrs. G. Middlemas; fancy rag mat.  
Villegia & Slotterhack, sbotgun and sporting materials.  
Mrs. E. H. Watson; infant's sacque and quilt.  
Mrs. J. T. Fowler; needlework quilt.  
A. J. Anderson; patchwork quilt.  
Mrs. Horton, Mrs. Truehody, Miss Coolidge, and A. R. Hynes; each for silk quilts.  
N. Curry & Bro.; carbines and pistols.  
Liddle & Kaeding; fishing tackle.  
David Miller; finest bearse.  
Taber & Cunningham; milk wagons.  
Larkin & Co.; phaetons and trotting wagons.  
J. H. Lawton; skeleton trotting wagons.  
Henderson & Clark; grocery wagon and huggy.  
Paul Friedhofer; brewers' wagons.  
E. Soule; farm wagon.  
Talkingham & Sberwood; child's wagon.  
Kimball & Co.; nickel plating.  
Henry Lake & Co.; shoe blacking.  
Hucks & Lambert; axle grease.  
F. R. Amos; soaps.  
Painter & Calvert; pharmaceutical.  
W. Goldstein; best display of Cal. manf. perfumery.  
Standard Soap Co.; best display of standard and domestic soaps.  
Eureka Match Co.; matches.  
Mosheimer & Stewart; California borax.  
R. F. Tooth & Co.; extract of meats.  
Ross, Dempster & Co.; Australian preserved meats.  
Boston Cracker Bakery; cakes and crackers.  
Brignardello, Machiavello & Co.; vermicelli, etc.  
F. D. Code & Co.; jellies and jams.  
Erzgraber & Goetzen; sauces, preserved fruits and meats.  
W. H. Stearns & Co., California boney.  
I. Landsberger & Co.; full exhibit of still and sparkling wines.  
Geo. West; best sherry and port wines.  
Dressel & Co.; best white wines from Mission grape.  
C. Van Detten; best white wine from foreign grape.  
M. Keller, best exhibit of wines and brandies.  
A. Finck; best champagne.  
Chenery, Souther & Co.; best exhibits of wbiskies.  
Albert Kuner; stone and seal engraving; 1st premium.  
John Allen; stone and seal engraving; 2d pr.  
Geo. W. Patch; stencil impressions; 1st pr.  
F. M. Trueworthy; stencil impressions; 2d premium.  
Swain & Co.; display of fancy goods.  
Brown Valve Co.; valves.  
W. I. Tustin; windmills.  
W. E. Phillips; oiler for crank pins.  
Geo. W. Dickie; models and drawings of composite vessels.  
D. & H. A. Winter, combination seed sower and cultivator.  
Hunter & Weister; improved grain separator.  
R. Stone; novelty fanning mill.  
Hoagland & Rees; Buckeye tobacco cutter.  
Weister & Co.; power and hand corn puller and husker.  
Thomas Wheaton; Buckeye hay cutter.  
F. A. Huntington; flax breaker.  
Wiggett & Co.; spruce, ginger, and root beer.  
Tooth & Co.; best foreign ale.  
Erzgraber & Goetzen; best cider.  
Swan Brewery; best ale and porter.  
C. H. Foster; earthquake truse.  
C. H. Foster; design for iron roof.  
Geo. Schmidts; fine drawings.  
Pacific Bridge Co.; model of Smith's truss bridge.  
W. A. Field; model of gate.  
J. H. Plath; carriage drawings.  
Bones & Pierson; architectural drawings.  
John Daniels & Co.; marble mantels.  
Asphaltum Pressure Pipe Co.; Water Pipe.  
Knowles' Steam Pump; 1st premium.  
Wm. Carr; drawing of pavement.  
Mrs. A. O. Cook; modeling in wax.  
Mrs. M. G. Turner; wax work; 2d premium.  
Mrs. M. E. Gerrish; best arrangement of fine wax work.  
Mrs. Schmidt; best display of hair work.  
Mrs. C. Cook; best display of hair jewelry.  
Miss J. Gardner; display of wax work.  
Mrs. Doherty; display of curls, chignons and hair work.  
Mrs. A. D. Baker; leather work.  
Mrs. Cotter; Decalcomanie.  
Mrs. Anna Getz; best display of wax work.  
Mrs. A. Bosworth; shell work.  
Henry White; scrap book.  
H. Kabin; artificial flowers.  
Babcock's fire extinguisher.  
J. T. Ford; hook and eye machine.  
John Roach; mountain barometer.  
Miss M. M. Henderson; photograph coloring.  
Wm. Haskin's hydraulic pipe.  
Boyd; California yeast and baking powders.  
Miss Addie Whiting; paper flowers.  
Peter A. Magnus; silver jewelry.  
Oakley's Mills; meals, flour, etc.  
G. W. Clark; band loom for manufacturing wood shades.  
W. L. Perkins; paper collars.  
S. K. Dodge; huckskin gloves.  
Joseph Bros.; display of boy's clothing.  
Joseph Lancaster; custom-made clothing.  
Samuel Figel; youths' military clothing.  
J. Figel; display of men and boys' clothing.  
Allen, Clark & Co.; parlor bed.  
J. H. Culver; specimens of twist molding.  
Allen, Clark & Co.; automatic parlor bed.  
Etna Iron Works; steam water lifter.  
Chas. Gentile; photograph from Arizona.  
Button & Co.; inlaid tables.  
J. Herzog & Co.; Eureka hair.  
Crane & Brigham; best sulphate of copper.  
M. M. Cook & Son; leather hose.  
Dutton & Co.; improved harness.  
J. H. O'Neil; glass cutting and etaining.  
Wilcox & Gibbs; best sewing machine work.  
J. F. Fugazi; pomades, hair oils and hair dyes.  
Mrs. Eva Goldstein; ladies' and children's clothing.  
J. Martenstein; improved water gange.  
Hartsborn & McPhum; window shades and roller.  
G. D. Crocker; quartz mill.  
Charles Pace; chronometers.  
W. L. V. Parkhurst; scales; (Howe's Standard.)  
Brittan, Holbrook & Co.; copper ware; Cal. manufacture.  
Schmidt & Burkhardt; gilt oval frames.  
Betts, Bunner & Co.; Gorham's combined broadcast seed-sower and cultivator.  
Tay, Brooks & Backus; Japanned ware; 1st premium.  
Brittan, Holbrook & Co.; Japanned ware; 2d premium.  
Ellsworth & Washburn; folding school desk.  
Edouart & Cohn; general photographic work.  
Dettlo & Beck; custom-made boots and shoes.  
Edward Galpen Co.; trunks and valises.  
Alfred Swingle; rifles and shot guns, Cal. make.  
Hall & Wagner; California Bleaching soap.  
Tubbe & Co.; California manufactured rope; special.  
P. Kelley; display of fancy boots and shoes.  
D. Norcross; regalia, etc.  
Marden & Myrick; coffee and spices.  
G. D. Gharardella; chocolate, coffee and spices.  
Rison Iron Works; steam winch.  
Wm. Blair; model steam engine and boiler.  
Skinner & Bonnet; imperishable pavement.  
Miss Emma Neubauer; fancy work basket.  
Mrs. C. O. Favor; embroidered underwear.  
Miss Hattie Whiting; worsted work basket.  
Broderick & Kast; custom made boots and shoes; 2d premium.  
Chas. Strong; California cotton.  
J. L. McFarlane; Australian exhibit.  
F. Gruber; two cases stuffed birds.  
J. Hartley; samples of wool, "Golden fleece."  
M. Barthel; farm gate.  
H. Rosekrans; sash tightener.  
Thornton Westley; gem sofa bed.  
Luhin & Goldstein; burners and lamp chimneys.  
H. Behrendt & Co.; trunks and valises.  
F. Nanns; linen tablecloth and napkins, California manufacture.  
Crystall Salt Co.; California manufactured salt.  
Hollihan & Burbridge; rustic window shades.  
D. McCarini; plaster busts and figures.

- M. Heverin & Co; fine statuary and marbles.  
Miss Amelia Thomas; skill in silk reeling.  
Mrs. J. D. Galloway; agricultural wreath.  
Magdalen aylum; needlework; 2d premium.  
Miss Rebecca Greenwood; paper flowers; 2d premium.  
Gustavus Fagerstein; pastel picture.  
Miss Armstrong; wax fruit and flowers.  
J. G. Steele & Co.; Pharmaceutical preparat'as.  
Duaa & Campbell; California made harness.  
Mrs. M. Ireland; water colored sketches.  
S. M. Gautier; steam scouring and bleaching.  
John Burns; horse shoes.  
Kohler & Chase; brass and string instruments.  
Mrs. J. H. Nevins; hats made from pine leaves.  
Weichart & Fresse; furniture.  
Chas. Otto & Co.; California made Hardware.  
Geo. A. Brush; imitation of woods.  
A. H. Nakins; neck ties and bows.  
Caseholt & Kerr; improved carriage wheels.  
P. D. Code; pickles, and canned fruits.  
Mrs. E. Blanche; drawings, Kingstonia style.  
Marsh, Pillsbury & Co.; blowers.  
D. R. Provost; best California wiae vinegar.  
Miss Emily Eastmaa; coloring of photographs; 2d premium.  
John F. Snow; dyeing and renovating process.  
P. Merrill; carpet beater.  
Crandall's improved spiral bed spring; 1st prem.  
I. C. Woods; carbolic acid disinfectant.  
F. B. Taylor; lubricating oil.  
C. Gruenhagea; wire work.  
Special Cash Premiums—Essays and Reports.  
W. Gouveaur Morris and H. C. Bennett; for essay on the manufacturing interests of Cal., \$400.  
David R. Smith; for essay on the best method of transporting ores, \$100.  
Solomon W. Jewett; for essay on cotton, \$100.  
Dr. MacGoway; for essays on insect wax, grass cloth, artificial manufacture of pearls, feather work and tree tallow, all of Chias, \$200.  
A. J. Bigelow; for best method of clearing and cultivating tule lands, \$100.

## Scientific Lectures.

The want of an Evening School in this city, which young men employed during the day might attend, for the purpose of acquiring a thorough acquaintance with the present state of science, has been greatly felt. This deficiency has now been met, we are glad to see, by the establishment of a class at the St. Ignatius College, on Market street. The instruction will embrace a complete course of physics and chemistry, adapted to older students of ordinary intelligence, and the subjects will be illustrated by numerous experiments. The lectures will take place every Monday, Tuesday, Wednesday and Friday evenings, beginning at 7½ and ending at 8½ o'clock. To those desiring to perfect themselves in metallurgy and mineralogy, this class affords a splendid opportunity, and for these branches, destined to become of the utmost importance on this coast, a knowledge of chemistry is indispensable. We have had the pleasure of examining the laboratories and extensive apparatus of the College, and from that fact are assured that nothing will be wanting to render these lectures both interesting and instructive. An extensive mineralogical cabinet, containing specimens from all parts of the world, will facilitate the studies connected with geology and mineralogy. These lectures are not for young men only; but for all whose tastes lie in that direction.

LOS ANGELES.—The grape crushing season has commenced here. A reliable estimate of the crop near Anaheim, is, that it will be only two-thirds that of last year owing to the ravages of grasshoppers and the dry season. At Cocomungo Beach and vicinity the grasshoppers were only checked by ditches. The loss there is greater than at Anaheim. A single wine grower in the Los Angeles valley expects to realize 200,000 gallons. The total wine yield of the county is estimated at from a million to a million and a quarter gallons.

INACCURACIES OF THE CENSUS.—Great complaints have been made of the inaccuracies of the last census. So imperfect was it shown to be in Philadelphia, that the Census Bureau ordered a new census for that city, which resulted, among other facts, in advancing the value of the annual manufacturing industry of that city from \$206,000,000 to \$326,000,000—an increase of about 60 per cent.

WHEAT FROM CALISTOGA.—The shipments of wheat from Calistoga during last week averaged about fifty tons per day.



## Our Printed Mail List.

Subscribers will notice that the figures found on the right of the printed slips, represent the date to which they have paid. For instance, 21st/70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4/72, that he has paid to the 4th of January, 1872; 4/72, to the 4th of July, 1873. The inverted letters occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction. Please notify us if you are not properly credited within two weeks after paying.

## Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

W. H. MURRAY—General Traveling Agent.  
TALBOT P. POWERS—Solana and neighboring Counties.  
I. N. HOAG—Sacramento, General Agent.  
F. M. SHAW—San Diego.  
L. P. McCARTY—California.  
T. W. DEVLAND—California.  
M. W. LEVY—Denver, Colorado.  
M. H. STAMM—Pacific Coast.  
T. POYER—California.  
Wm. J. CLARK—California.  
JOSEPH DIMMICK—California.  
E. P. HICKS—California and Oregon.  
A. C. KNOX, City Soliciting and Collecting Agent.

SUBSCRIBERS should send former address, when ordering the paper sent to a new place. Returning a newspaper or blank slip, WITHOUT THE NAME AND RESIDENCE OF THE SUBSCRIBER is a thoughtless act, and useless both to subscriber and publisher.

Complete Volumes of the Scientific Press from January, 1864, can be had at this office at \$3 per volume. Bound in cloth, \$5. A limited number only on hand.

IN COLORADO.—Mr. W. H. Murray, special agent and correspondent for the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS of San Francisco, left copies of his journals when he was here, and judging from these numbers, much valuable information regarding irrigation and mining can be obtained by reading them. The interests of California and Colorado are identical, and the people should become more acquainted with each other.—Greeley Tribune, Colorado.

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught.

Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TARR, Oakland, Master Fifth Class.

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## Mining and Other Companies.

On account of the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

## Alameda Coal Mining Company—San Francisco and Alameda Counties, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 7th day of September, 1871, an assessment of fifty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, 409 Battery street (first floor), between Clay and Market streets. Any stock upon which said assessment shall remain unpaid on the 7th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 30th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

M. PHILLIP, Secretary. Office, 400 Battery street, San Francisco, Cal. se104w

## Bellevue Mining Company—Location of works, Ophir District, Placer County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of August, 1871, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 3d day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 30th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary. Office, 409 California street, San Francisco, Cal. se24w

## Jeinsen Lubricator Company.—San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 1st day of August 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
John Gardner.....	28	50	\$25.00
John Gardner.....	45	75	37.50
James O'Neill.....	46	75	37.50
E. Von Jeinsen.....	38	10	5.00
Wm. J. Campbell, Trustee	32	15	7.50
Wm. J. Campbell, Trustee	33	35	18.00
Wm. J. Campbell, Trustee	34	50	25.00
Wm. J. Campbell, Trustee	31	15	7.50
Wm. J. Campbell, Trustee	35	50	25.00

And in accordance with law, and an order of the Board of Trustees, made on the 1st day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 428 California street, on the 25th day of September 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CALEB T. FAY, Secretary. Room No. 7, 428 California street. Sept3.

## North America Consolidated Mining Company—Location of works, White Pine Mining District, County of White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of July, 1871, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 8, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, September 5th, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 30th day of September, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary. Office, Room 8, No. 302 Montgomery street, San Francisco, Cal. aug5d

POSTPONEMENT.—The day of deeming stock delinquent on the above assessment is hereby postponed until Thursday, the 28th day of September, 1871, and the sale thereof until Wednesday, the 18th day of October, 1871.

By order of the Board of Trustees. WM. H. WATSON, Secretary. se9-3

## Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the second day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Brush, R. G.....	245	38	\$ 28 50
Brush, R. G.....	288	52	46 50
Brush, R. G., Trustee.....	231	50	37 50
Copp, F. P., Trustee.....	310	100	75 00
Copp, F. P., Trustee.....	311	40	30 00
Copp, F. P., Trustee.....	312	40	30 00
Copp, F. P., Trustee.....	313	22	16 50
Copp, F. P., Trustee.....	314	285	221 25
Hathaway, W.....	224	274	205 50
Leahy, John.....	250	1	75
Lake, Geo. C.....	236	10	7 50
Lake, Geo. C.....	328	203	152 25
Miller, W. E.....	187	32	24 00
Miller, W. E.....	178	74	55 50
McCurdy, E.....	173	23 1/2	17 62 1/2
McCurdy, John R.....	139	100	75 00
McCurdy, John R.....	190	12	9 00
McCurdy, John R.....	212	200	150 00
Miles, Harriet A.....	307	10	7 50
Swain, H. C.....	245	100	75 00
Swain, H. C.....	246	50	37 50
Shaffer, John.....	254	1	75 00
Speyer, Richard.....	309	24 1/2	18 37 1/2
Vigoureux, A. W.....	302	100	75 00
Weller, Jr., John B.....	305	20	15 00

And in accordance with law and an order of the Board of Trustees, made on the 3d day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, on the 25th day of September, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

Office, 314 California street, San Francisco, California. se16-2w

## OPHIR COPPER, SILVER AND GOLD MINING COMPANY.—POSTPONEMENT.

The above sale is hereby postponed until Saturday, September 30, 1871, at the same hour and place. By order of the Board of Trustees. R. G. BRUSH, Secretary. se23-2t

## Gold Run Mining Company—Location of works, Gold Flat District, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at their office, No. 3 1/2 Sansome street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 10th day of October, 1871, shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 1st day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. C. PALMER, Secretary. Office, 325 Sansome street, San Francisco. se9-1w

## Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of September, 1871, an assessment of three dollars (\$3) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 24th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room No. 25, 419 California street, San Francisco, California. se23-1d

## Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the fourth (4th) day of September, A. D. 1871, an assessment (No. 1) of one dollar and twenty-five cents per share was levied on the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 415 California street, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 9th day of October, A. D. 1871, shall be deemed delinquent and will be advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock P. M. of Wednesday, the 9th day of November, A. D. 1871, will be sold to pay the delinquent assessment, together with the costs of advertising and expenses of sale.

J. W. CLARK, Secretary. se9-1w

## Quail Hill Mining and Water Company—Location of works, Quail Hill, Calaveras county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of August, 1871, an assessment of twenty dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 7th day of September, 1871, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold on the 18th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary. Office, 409 California street (up stairs), San Francisco. aug26-1w

## St. Patrick Gold Mining Company.—Location of works, Ophir District, Placer County, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Geo D Roberts.....	13	100	\$500 00
Geo D Roberts.....	15	100	500 00
J W Gashwiler.....	25	100	500 00
J W Gashwiler.....	51	10	50 00
John F Boyd.....	10	50	25 00
F A Hill, Trustee.....	56	50	250 00
F A Hill, Trustee.....	59	100	500 00
F A Hill, Trustee.....	60	50	250 00
F A Hill, Trustee.....	61	50	250 00
F A Hill, Trustee.....	78	33	165 00
F A Hill, Trustee.....	81	100	500 00
F A Hill, Trustee.....	82	50	250 00
F A Hill, Trustee.....	83	200	1000 00
W L Ustick.....	140	10	50 00
Kate C Cronise.....	64	25	125 00
A C Peachy.....	53	100	500 00
A C Peachy.....	79	100	500 00
E A Richardson, Trustee.....	82	10	50 00
E A Richardson, Trustee.....	84	5	25 00
E A Richardson, Trustee.....	85	300	1500 00
E A Richardson, Trustee.....	99	50	250 00
E A Richardson, Trustee.....	100	50	250 00
E A Richardson, Trustee.....	101	300	1500 00
E A Richardson, Trustee.....	102	200	1000 00
E A Richardson, Trustee.....	121	10	50 00
E A Richardson, Trustee.....	122	10	50 00
E A Richardson, Trustee.....	123	70	350 00
E A Richardson, Trustee.....	132	10	50 00
E A Richardson, Trustee.....	136	7	35 00
J Clem Uhler, Trustee.....	151	50	250 00
J Clem Uhler, Trustee.....	162	10	50 00
L Maynard.....	110	10	50 00
E Schindler, Trustee.....	84	25	125 00
J Straus, Trustee.....	128	25	125 00
J Straus, Trustee.....	129	25	125 00
J Straus, Trustee.....	130	25	125 00
J Straus, Trustee.....	131	25	125 00
O P Sutton, Trustee.....	134	50	250 00
H K White.....	114	4	20 00
D Dixon.....	143	25	125 00
M Mayblum.....	114	5	25 00
M Mayblum.....	114	10	50 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of August, 1871, so many shares of each parcel of stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street, San Francisco, State of California, on the 9th day of October, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary. Office, 409 California street (up stairs), San Francisco, California. se23-3t

## Tecumseh Gold, Silver and Copper Mining Company. Location of works, Gophor District, Calaveras County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of July, 1871:

Names.	No. Certificate.	No. shares.	Amount.
Louis Hazenquist.....	18	2	\$10 00
Louis Hazenquist.....	27	2	40 00
Henry H. Subling.....	12	10	60 00
Henry H. Subling.....	108	5	25 00
A. F. Bilay.....	68	5	25 00
Darius Hawland.....	82	2	10 00
Christina Hartmann.....	84	2	10 00
Victor Otto.....	104	5	25 00
Fred Rahnman.....	109	5	25 00
H. Bredehoff.....	76	5	25 00



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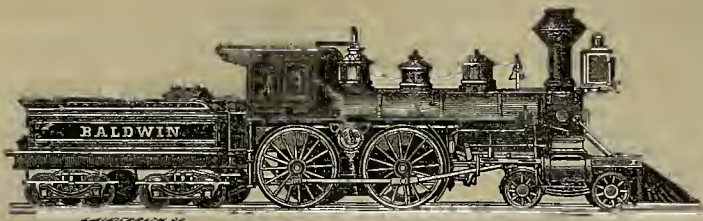
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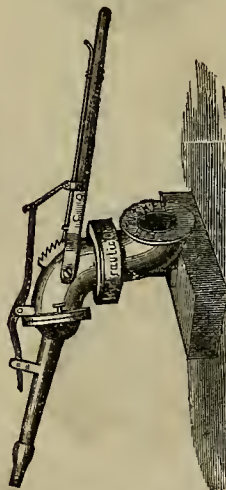
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Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

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The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

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RECOLLECT

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to do and be all we claim for it.

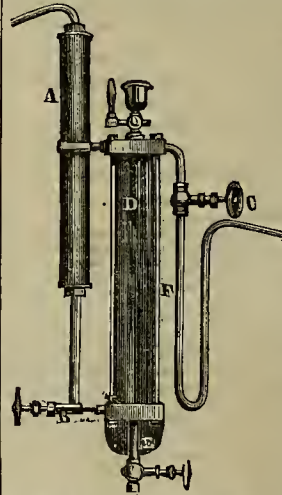
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by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.  
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Or "TALLOW OUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION.—D, is a glass chamber which contains the lubricant. O is a valve, connecting with cap which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the siphon of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. fe18-ff

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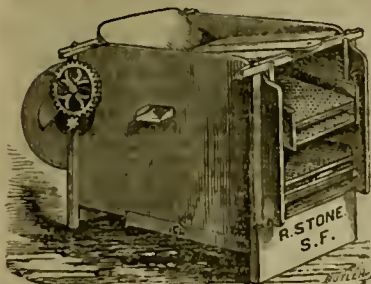
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# CRAIG & BREVOORT'S Patent Condenser for Steam PUMPS, &c.



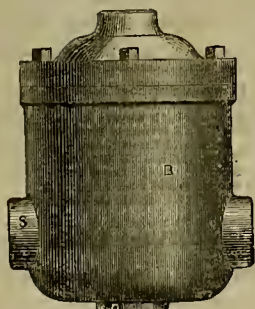
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have. W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

The valve, G, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address  
**H. L. BREVOORT,**  
6v23eowly 128 Broadway, New York City.

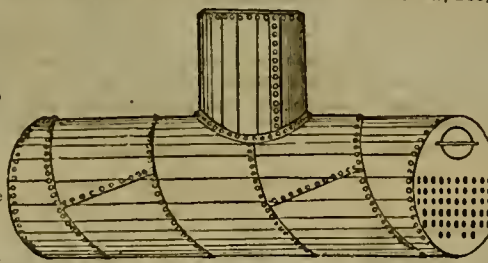
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Since the time when King Alfred made the first lantern by surrounding a candle with a transparent casing of horn, this class of appliances has been one of the greatest utility and most extended use. Among the latest improvements in its construction is that illustrated in the accompanying engravings, and designed to secure the threefold object of providing for the easy cleansing of the glass portion, the secure retention of the upper in place upon the lower part of the lantern, and the affixing of the hall to the top of the lantern in a durable and efficient manner. The base of the lantern is provided with the usual detachable lamp, and at one side has hinged to its upper edge a wire frame designed to carry and protect the glass portion or body of the lantern, and at the upper end of which is the cylindrical top, perforated in the ordinary manner to permit the escape of the products of combustion from the lamp. Arranged at that side of the base opposite the hinge is an angular spring-catch or applied as to catch over the annular lower rim of the wire frame, and in conjunction with the hinge, to hold the said frame firmly in place upon the base as required when the lantern is in use.  
This Lantern is offered as



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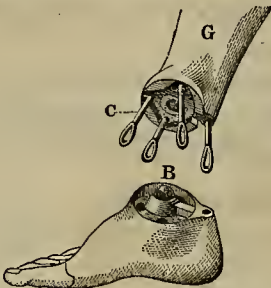
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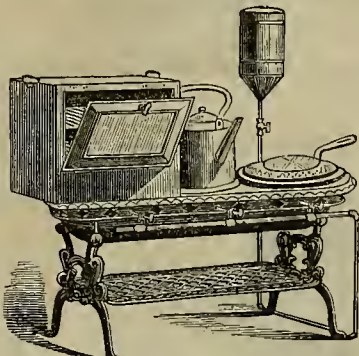
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are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETTS being the original Inventor and Sole Maker in the United Kingdom. 1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.



# SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, SEPTEMBER 30, 1871.

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## Rail and Car Mortising Machine.

This machine is of a heavy and substantial description, as may be seen by the accompanying illustration. It is built upon a column of cast iron, the mandrels carrying the auger and the chisel stand, seven inches from the fall thereof. The carriage, which has a suitable vertical adjustment, will receive timber sixteen inches wide. Chisels of any needed width may be used, a three-inch mortise in hard oak producing no concussion to the foot of the operator and no injury to the machine. The stroke is four inches, but may be increased to seven inches or less, if desired. The auxiliary boring apparatus, by means of levers easily handled, has a horizontal adjustment of sixteen inches, and a vertical motion of the same amount, using augers of that length; with it all holes needed for bolts or other purposes may be bored whilst the timber is in hand for mortising.

There are several different classes of these power mortisers—those for agricultural implement works; wagon and hub factories; furniture and carpenter shops, and the one represented in our cut. The excellence of these machines consists in the automatic graduation of the stroke, perfect subjection to the will of the operator, and absence of any jarring to the foot of the workman, even in working hard wood. The machines are built with iron columns, and the carriage is set to the proper elevation and firmly held, without the use of bolts. The cut of the chisel is initiated as in the foot mortising machine, each stroke descending deeper and deeper, but always rising to the same altitude—as the treadle is gradually depressed until the maximum is reached. This is accomplished through the action of the treadle upon the toggle joint in moving a sliding wrist upon the vibrating arm, to a point more and more remote from the center, the increasing leverage of the toggle joint, as it is straightened, presenting a more powerful resistance to the return of the wrist as the labor of the chisel increases in severity. When the pressure of the foot is removed from the treadle, through the action of a weight the toggle joint resumes its normal position, retracting the sliding wrist until its center coincides with the center of motion in the vibrating arm, instantly arresting the chisel at the highest point of its range and without any concussion. For further information concerning this machine, address Lane & Bodley, corner John and Water streets, Cincinnati, Ohio.

TEA.—Great Britain consumes four times as much tea as the United States.

MINING MACHINERY FOR CARIBOU.—The Prince Alfred on her last trip, took up a steam pump and hoisting machinery of 20-horse power for the Black Bull Mining

INDUSTRIAL FAIR IN MONTANA.—The Second Annual Fair, of the Montana Agricultural, Mineral and Mechanical Association, was opened at Helena, M. T., on

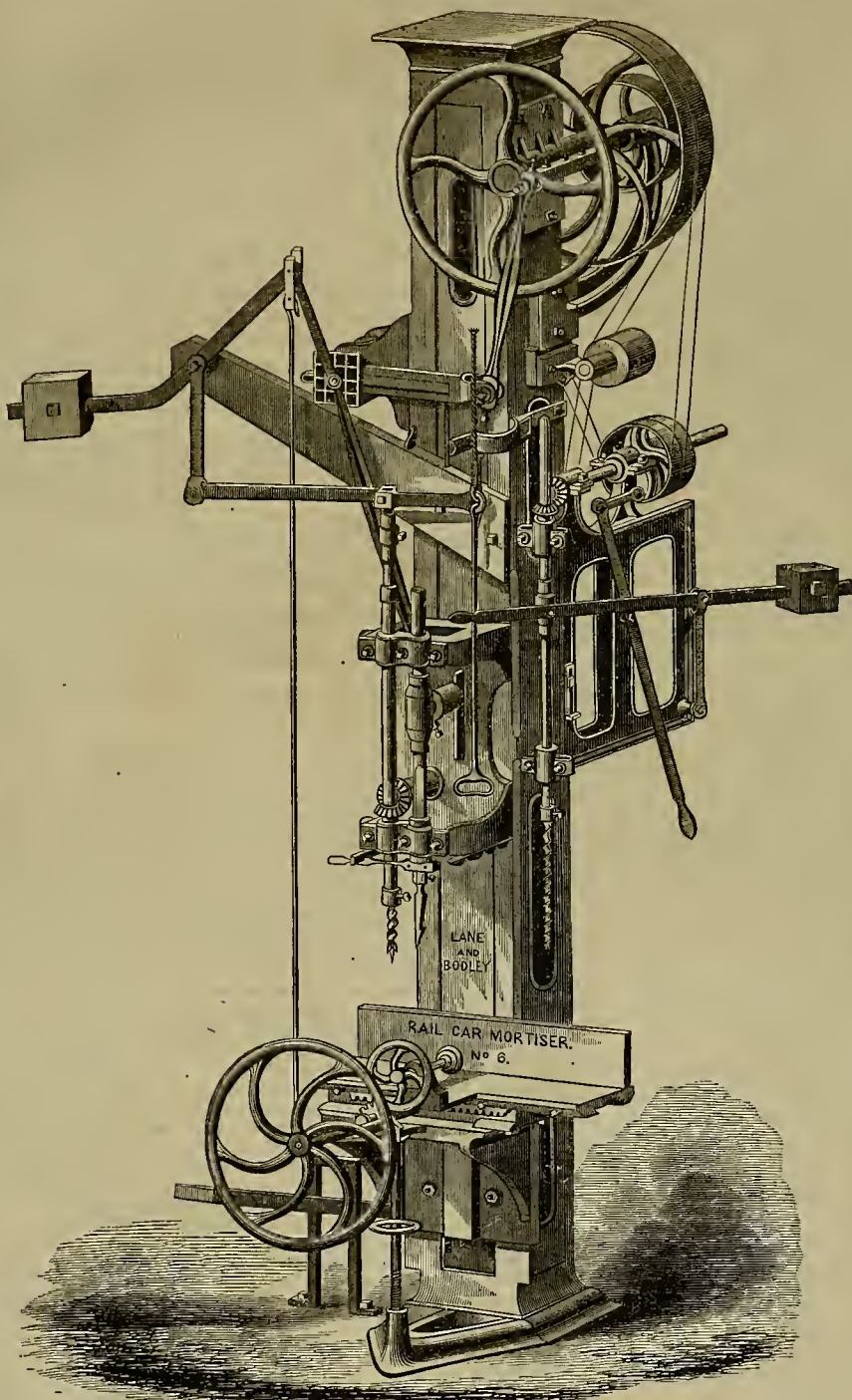
## New Silver Ore Chloridizing Process.

An ingenious method of roasting and chloridising silver ores in a mass, and without stirring, the invention of Mr. Crosby, is said to have been successfully tried in Colorado. The process may be referred to that of cooking in square ovens, and is equally simple. The ore chamber is of oblong form, 10 feet long, 7 feet wide, and 10 feet deep, and has a perforated floor made of bricks or tiles, with 2-in. holes, about 7 in. apart; doors are provided on each side of the chamber for drawing the charge. Underneath the perforated floor are fire boxes, the flues of which are made to pass under the floor of the chamber. Round wooden 2-in. poles are placed upright in the perforations in the bottom, and held in place by wire or light hoop-iron, passing across the top of the chamber. These being in position, and the side doors closed, the furnace is ready for charging.

The ore to be treated is prepared by mixing with it about 10 pounds to the ton of cut straw, hay, or other fibrous vegetable material, with the necessary quantity of brine, the whole being moist enough to pack well. When the chamber has been charged by shoveling in the mass around and among the poles, the poles are withdrawn and a slow fire applied beneath. The flame and heat pass under the ore chamber, and thence upward, through the ore by means of the openings left by the removal of the poles. The moisture is rapidly expelled, and the flame then attacks the straw incorporated with the charge. As this burns out innumerable little flues are formed, which not only lead the flame through every particle of the mass, but form avenues for the escape of sulphur and other volatile matters. A charge of 40 tons of ore can be treated in from 48 to 60 hours, and the consumption of fuel is from one-eighth to one-tenth of a cord of wood for each ton of ore.

The cost of a 40-ton furnace will vary from \$1,750 to \$2,500, and in its use it is claimed to be extremely economical; it is also claimed that it provides a way for the treatment of low grade ores that cannot be profitably handled by any other method; as the ore must be wet when put into the furnace, it can be used by either dry or wet crushing mills, the latter being at no expense for drying ore; whilst the furnace may be made of either brick or stone, requiring no power, and having no iron work exposed to the fire, the grate-bars excepted.

THE discovery has been made by Captain Ericsson that the heat of the sun is 4,060,000 degrees Fahrenheit.



LANE & BODLEY'S POWER MORTISER.

Company in Caribou, and it is said that other companies in that section of country intend also to ship machinery from here. Thus it will be seen that all developments in mining regions on this coast, no matter how far off, contribute something to our industrial prosperity. The Lane & Kurtz company of the same place have sunk 64 feet on their ledge and their steam machinery is operating successfully.

the 25th of September, and will continue six days. The awards in the different departments will consist mainly of cash premiums. We expect to be able to give some account of the proceedings.

CARBOLIC acid sprinkled in small quantities about a room will abate those intolerable nuisances, fleas and mosquitoes.



## MECHANICAL PROGRESS.

### Coal Dust as Fuel.

We have frequently, within the past two or three years alluded to the progress of experiments in utilizing pulverized coal-dust as fuel; always holding the matter to be of great industrial importance. It appears from the *Am. Railway Times* that the chief credit of this improvement is due to Mr. Whelpley & Storer of Boston, who have been experimenting in the matter for the last ten years, and that they have now almost completed arrangements for introducing it into general use.

They have protected themselves with some 40 American patents, besides securing patents in most foreign countries. They have just sold to a company of capitalists the "right to use their patents in New England; and are now negotiating for sales in California, Pennsylvania, Ohio and other States. Their patents cover devices for its use for puddling and other furnaces, and for locomotive, marine and stationary boilers.

They claim an economical advantage of 30 per cent. over ordinary fuel expenses for boilers, and from four to five dollars per ton economy in working iron. The advantage of such a method of burning coal, if it has been made practicable must be apparent to every one conversant with such things, and there appears to be high authority for the assertion that they have fully overcome all obstacles in the way of its practical introduction. We know of no invention of late years that seems to promise more than would the successful introduction of pulverized coal for steam fuel, and for furnace operations. We hope soon to be able to give a full description of the application of the invention.

### Berlin Iron Castings.

The delicacy and beauty of outline characterizing the Berlin iron castings have given them a world-wide reputation. The minutest details are sharply defined, and the entire surface has an admirable bronzed-like smoothness, resembling works of art. It has been generally supposed that this kind of work was made by mixing with the iron some metalloïd, which has the effect of giving to the metal more fluidity and density; this appears, however, not to be the case—they being made of iron alone, and perfected in the processes of manufacture by the ingenuity of M. Schott. His attention, it is stated, was first directed to the importance of procuring the finest quality of moulding sand made by mixing burned clay with pulverized sandstone, having a maximum porosity. It has also the fineness of grain so essential for delicate moulds. The most important part of the process, however, is the preparation of the metal. M. Schott made a series of experiments to determine the melting point of different kinds of pig iron, and by mixing several in proper proportions, he found it practicable to vary the melting point at will. Indeed, his experiments proved that the melting point of different samples of charcoal iron, made at his own blast furnaces, varied more than eight hundred degrees Fahrenheit. The iron ore used by him is not different from that found in many other places. It is reduced in a series of small charcoal furnaces in the vicinity of the mines, which are situated in Northern Germany, near the town of Brunswick.

**WATER AS A SUPPORT FOR BEARINGS.**—Experiments have recently been made, with considerable success, in the introduction of water as a support for the journal of a shaft. Lubrication by water has often been practiced, especially upon car-journals, a continuous stream being directed upon the bearings; but although it is claimed to have proved entirely satisfactory in its results, reducing the friction and at the same time preventing the heating of the journals, it does not appear to have met with general approval among engineers.

The more recent modification of the method above referred to consists in forcing a stream under pressure beneath the journal, lifting it clear of the metal of the box. This has been done with excellent effect in the case of vertical shafts, a valve being introduced by which the water

escapes whenever the pressure exceeds a certain limit. If an ample supply of water is provided, it will thus constitute a steady and uniform bearing for the shaft, both the heating and friction being avoided. The friction is not actually done away with, in the strict sense of the term, but merely transferred to the pump by which the water is supplied and the upward pressure exerted on the journals.

### A Piano Without Strings.

For more than a hundred years innumerable attempts have been made to discover a substitute for the string in pianos. Without the discovery of such a substitute, all attempts to construct a steel instrument would only be partial successes. The essential points in a new sound medium for this purpose, without either of which it would be useless, being, that it must furnish a compass of from six to seven octaves; that it may be operated upon by an ordinary pianoforte action; that it shall occupy no more room in the instrument (laterally) than the key board; that it may produce a tone at once pure, free from harmonies other than those necessary to produce the proper quality of tone or "tone clang," free from the disagreeable sound of the hammer on the sound board, and of the proper sonorous power; that the instrument constructed with such a sound medium may be simple in construction, not liable to get out of tune, to break, or deteriorate, nor occupy too much room, not be too heavy, and at the same time be cheap and durable, and that the sound medium may be mounted on an iron plate, and yet effect a communication with the sound board. All of these points the inventors claim for their new steel piano.

If these claims be fully established, a struggle between the steel hook and the steel string will commence, with the chances in favor of the former. That this new instrument must prove a formidable rival to the piano, the inventors claim is evident from the fact that unless the piano was not known to be so defective, no attempts would ever have been made to discover a substitute for the string.

The peculiar, unpleasant tone of the stringed piano is caused by the shock of the hammer on the sound board, imparted through the action of the tightly drawn strings. If this noise, so unpleasant to a fine ear, especially in old instruments, could be separated from the genuine tone of the string, the instrument would still be exceedingly weak in tone. In the instrument under consideration, this disagreeable noise is said to be obviated, as the metal plate only transmits musical vibrations, not noise.

The steel hook can also be used in combination with reeds, as it is the only sound medium of a full compass that will keep in tune with reeds. The power of the new instrument is said to be only limited by the quality and size of the steel hooks, the power of the action, the space within the instruments, and the quality of the sound board. The hooks are attached to a metallic frame or bridge, which is fixed to a sound board in a vertical position.

The *Scientific American*, from which we quote, says the acoustic principle adopted is scientifically sound, and is inclined to believe that a good and powerful toned instrument can be made in the manner indicated. Only one instrument has thus far been constructed, and that under the immediate supervision of the inventors themselves, Messrs. Thos. Atkins and Henry Drewer, Cincinnati, Ohio, the accounts of which the *American* thinks are highly flattering to the success of the instrument.

**WOODEN SHIPS.**—A leading Maine paper, in a thoughtful and elaborate article on the subject of wooden ships, states that the depression in that class of shipping is represented as being much worse than it really is, and that the complaint that ship-building is dull and ship-yards are deserted, comes from outside of the United States, as well as inside. In Canada, where the alleged disadvantages under which our ocean ship-builders labor, do not exist, the business is fully as dull, and the papers of New Brunswick and Nova Scotia equally complain. In many places where ten vessels were formerly employed, hardly one is now used. The days when wooden sailing vessels were the chief vehicles of commerce are past, just as the old stage coach has been superseded by steam, and is now but comparatively seldom brought into requisition. It appears, too, that the profitability of ship-building has been greatly overrated, and that the country has actually suffered but little from its decline.

## SCIENTIFIC PROGRESS.

**NEW MODE OF OBTAINING THE EXTRACT OF HOPS.**—Mr. W. S. Newton, of England, has proposed and patented a new method of extracting the useful substance of hops. The process is based upon his discovery that the light products of petroleum, naphtha, etc., are rapid and complete solvents of the essential oils and of the bitter principle of hops, while at the same time they have no solvent action on the other constituents of the plant, which are either useless or hurtful. The hops are simply steeped in the naphtha, under a moderate heat. The apparatus employed is similar to that used for hi-sulphide of carbon when employed for similar purposes. The lighter hydro-carbons, those which boil at 100 degrees F., are preferable for this purpose.

**DISTANCES OF FIXED STARS.**—Prof. Safford read a paper before the late meeting of the British Scientific Association in which he proposed a new way to ascertain the distance of the fixed stars. He finds that the solar motion with which our sun is revolving around a center somewhere in the Pleiades, has a velocity six times as great as that of the earth in its orbit. As a base for the calculation of the distances of fixed stars, he considers the solar better than the orbital motion. He has observed for this purpose many groups of fixed stars, his general theory being that those stars which under observation show the greatest motion, are probably the nearest to us.

**IMPROVING THE POTATO.**—Mr. Simpson, an English scientific gardener, claims to have succeeded in materially modifying the character of the potato by, in some way, mixing it with the artichoke, and expresses his intention of displaying some specimens of his improved vegetables at the September meetings at Kensington. Doubts are entertained with regard to Mr. S.'s claims, although it is acknowledged that there is ample room for improvement in that direction.

**TESTING BY MEANS OF THE BLOWPIPE.**—According to the *Chemical News*, M. F. Jean states that sulphuret of sodium is one of the best blowpipe tests, if used in the following manner:—First, a bead is made with borax and the substance to be tested, and this bead, having been made very fluid within the reduction-flame, there is added to it some dry and pulverized poly-sulphuret of sodium, and the bead again heated in the reduction-flame. If the substance under investigation can form a sulpho-acid, there will be formed a soluble sulpho-salt and a clear bead; but when no such salt can be formed, with lead, for instance, an opaque bead will be formed. Iron, lead, bismuth, nickel, cobalt, palladium, thallium, silver, copper, uranium, etc., fused in a bead of borax, to which afterwards, sulphuret of sodium is added, yields a black or brown-colored opaque bead; zinc yields a white opaque bead; cadmium, while yet hot, scarlet red, and yellow after cooling; manganese, a dirty chestnut-brown; gold and platinum, a clear, transparent, mahogany brown bead; tin, a clear transparent yellowish brown bead; chromium, a green bead; arsenic and antimony, colorless clear beads; vanadium and iridium, blood-red beads.

**THE BENEFITS OF SCIENCE.**—The water used by the inhabitants of a certain locality in Philadelphia, among whom several cases of typhoid fever had appeared, was drawn from a shallow well, and was highly charged with various unoxidized compounds of nitrogen. It was suspected that, from some defect, the contents of a public urinal obtained entrance to the well. Professor Church obtained absolute proof by the following method. He introduced two grammes of a lithium salt into the urinal, and, two hours later, was enabled readily to detect with the spectroscope the presence of lithium in a litre of the well water, which by previous examination had shown no trace of this substance.

### The Productive Power of Soils.

Dr. Vöckler has recently given an interesting lecture on the Productive Power of Soils, in relation to the Loss of Plant Food by Drainage, from which we give the following extracts:—The lecturer began by showing the futility of the belief that a soil analysis could reveal whether a land was productive or not. The addition of 3 cwts. of good superphosphate to an acre of soil, 6 inches deep, increases the turnip crop in a favorable season, from 6 to 10 tons. Yet the percentage of phosphoric acid in the soil, was increased only 1-60,000th per cent. by the superphosphate. Chemical analysis cannot detect so small a difference.

The lecturer then discussed the relative values of various mineral salts as manures, quoting the experiments of Lawes and Gilbert, and his own examination of drainage waters. He had found that in whatever form nitrogen is applied to the soil, a large portion of it is always carried off in the drainage, chiefly in the form of nitrates. Nitrate of soda, especially, seems to be rapidly removed by the rain. It should therefore be applied late in the spring, in the middle of March in England. Farm yard manure gives the best results when applied late in the autumn. At all times of the year, but especially during the period of active growth of the crops, nitrates were found in the waters circulating in the land, while ammonia salts are never met in appreciable large quantities. It may be assumed therefore that it is chiefly, if not solely, from the nitrates that plants build up their nitrogenous organic constituents.

The analysis of these drainage waters, showed also that the potash and phosphoric acid are almost entirely retained by the soil, while the less important lime, magnesia, and sulphuric acid pass out more freely.

**NEW FOSSIL CONIFERÆ.**—The last Quarterly Report of the Mining Department of Victoria, Australia contains a matter of considerable interest to Science—a full diagnosis, for the first time given, of a new genus of fossil coniferæ, from the pen of Dr. Von Mueller. They were first found several months ago in one of the lodes at Haddon, by Mr. R. B. Smyth, secretary to the Victorian Mining Department, and during the past year a brief description of these fossils was sent by him for publication in the *Geological Magazine*. The genus has been named by the doctor, *Spondylostrobus*, and, as all the specimens as yet found belong to one species, it has been named after the discoverer, *S. Smythii*. Attached to the observations are a series of drawings of the fossil coniferous fruits found, of different sizes, which give a good idea of its general appearance.

**NEW APPLICATION OF CHARCOAL.**—A new application of charcoal has recently been made in England for the manufacture of a permanent enamel, or varnish for coating the insides of casks. The charcoal, which is made from the wood of *Salix Alba*, is reduced to a very fine powder, and mixed with proper proportions of shellac and methylated spirit. When ready for use it is laid on with a brush, and the inside of the cask is fired, so as to remove the spirit and leave only the lining of charcoal and shellac; it is then coated again and fired a second time, after which it is allowed to stand a short time before being used. This composition is said to form a perfect enamel, and while it prevents any chance of leakage it preserves the casks in an extraordinary manner. It answers admirably for beer and acids, and is largely adopted by some of our principal brewers.

SOME very interesting observations have lately been made on the properties of gun cotton. This substance, obtained with the ordinary process used by the manufacturers of collodion, is not soluble in alcohol; but, with the addition of a little camphor, it dissolves instantaneously. A beautiful artificial ivory is prepared by powdering gun cotton with camphor, and placing it under hydraulic pressure, covering it afterwards with a mixture of gun cotton and castor oil; by this process hilliard balls have been produced, which have been declared by connoisseurs to be superior to those of real ivory.

**TESTING LUBRICATING OILS.**—Some ingenious inventor has contrived an apparatus to test the relative merit of lubricating oils. The point is decided by an indicator that registers the different degrees of heat produced by the action of the machinery during the test, the heat revealing the relative amount of friction, decides the merit of the lubricator used. The invention is to be patented.



# CORRESPONDENCE.

## A VISIT TO TREASURE HILL, NEV.

BY OUR OWN TRAVELLER.

EDS. PRESS:—My last letter was dated from Utah, and here I am now in Nevada for the purpose of seeing the famous White Pine mines. The first in importance on Treasure Hill is the

### Eberhardt and Aurora Co.

This company has bought some of the principal mines on the Hill since I was here last, the Eberhardt and North Aurora consolidated, and 300 feet of the Ward Beecher. Mr. Thos. Phillips of London, Eng., is engineer and general manager; Geo. Attwood of San Francisco, Cal., is milling superintendent; Jos. Petts, chief foreman of the mines on the Hill; John McChrystal is foreman of the North Aurora; Wm. Davis of the Ward Beecher, and John Goodfellow of the Eberhardt.

I visited the mines with the chief foreman, and began by going down the shaft of the Ward Beecher—no doubt the most valuable mine on the Hill. It is located between the Hidden Treasure and South Aurora mines, well known to all of your readers. We descend 50 feet and find ourselves on a platform, where we have a fine view of the mine and chamber; then going down 35 feet more on a ladder, we arrive at the large chimney or ore chamber, which runs north and south. Places can be seen that I would judge were 100 feet in width, 40 in height, and 200 in length, and I am told that nine-tenths of all the rock taken out was good ore. There are 23 men in each shift, at work in this chamber. There are only two heavy timbers to support the roof—all being a capping of lime-rock and very solid. The general character of ore is horn silver and chlorides, resembling the old Eberhardt rock. This company has made some fine developments since they took the property, and their work is being vigorously prosecuted, giving new life to Whitto Pine District. The ore that is being extracted is hoisted from the mine by horse and steam power. They have four shafts, and hoist 130 tons of ore per day out of the Ward Beecher and North Aurora mines, which is carried on the tramway to the mills below, at Eberhardt City. I am told that they have from 5,000 to 6,000 tons of ore in the mine and on the dump, that is broken up ready for shipment. It is good milling ore and averages \$50 per ton. They sent to mill 51 sacks, while I was there, that was expected to yield \$1,500 per ton. There is a fine 20-horse power engine for hoisting—which is the only one on the hill, all the rest being done by horse power. The water used is brought from the White Pine Water Co.'s tank, a distance of 1,800 feet, in a pipe. In the famous

### Eberhardt Mine,

they are sinking on the old Keystone shaft which is looking very well. They are taking out ore daily that will mill \$80 to \$150 per ton, and some much higher. A side track is now being built that will connect with the company's tramway, in order to facilitate the transportation of ore to the mill.

### The Earl Mine,

is located south of the Ward Beecher and is yielding about 40 tons of rich ore per day. There are three shafts in this mine, the main one of which is 116 feet deep. The company have sunk deeper and worked further to the east, and found the continuation of the ore body worked by the former owners. There seems to have been a slide on the hill from east to west, which has carried the croppings a distance of 37 feet, misleading the miners as to the location of the main body of ore. The present owners have shown good judgment and engineering skill, and proven that the body of ore in these large deposits runs down to an indefinite depth. They have built walls, tramways, etc., employing a large number of hands, and have been rewarded for their energy and perseverance. The deposit runs from the north to the south end of the hill, dipping at an angle of 32°, and is bounded on the west by a large spar vein, dipping to the east at the same angle. This spar seam evidently forms the western boundary of all the ore deposits running

north and south in this Hill, and the flats known as chloride, etc. In the shaft I noticed that the old company had followed the main spar seam down for some 40 feet, to the slip that I have spoken of; and, finding no ore after that, it was supposed by some that the deposit had given out. The present owners after a careful examination of the mine, proceeded to drift to the east of the main wall of spar, and struck the body of ore which they are now working, in 37 feet.

## BUSINESS AND MINING AT BELMONT, NEVADA.

EDS. PRESS:—This is at present one of the dullest towns in the State of Nevada. It is difficult to account for this inactivity where one would expect to find all life and bustle; for there is a permanency and value developed in the mining resources of this district which should make the place thriving and prosperous, business good, and property valuable. There have been many causes to produce this state of affairs; but there are none whatever, for its continuance, unless it is the temerity and inertness of some of the principal mine owners.

The failure of the Combination Co., about three years ago, and the poor success of the Belmont Mining Co., may still make the miners distrustful of their own ability to succeed where others have failed. But when companies have failed through the grossest mismanagement and extravagance, it should rather be a source of encouragement. Moreover, during the past three years, improvements in the modes of reducing the ores of this district have been made, so that mines which formerly could not be worked profitably can now be made to pay handsomely. The use of the Stetefeldt furnace here is accomplishing most beneficial results.

### Bad Policy of Mine Owners.

There is an inordinate desire manifested here, among some of the mine owners, to sell their property. They are not satisfied to go to work and mine in a legitimate manner. They unfortunately have heard of grand stock operations in other parts of the country, and they imagine that they too must be at the head of a great company, having its principal office in the City of London, before they can be satisfied to work their mines properly. If their mines were worthless or undeveloped, it certainly would be a wise policy to sell, or have others prospect them. But when the value and permanency of mines are proven beyond a doubt, it only injures their sale to be always hunting a purchaser. The mere fact that such anxiety is shown to sell, makes persons looking for opportunities to invest in such property suspicious that it is not as valuable as represented; and when they join this to the fact that but comparatively little work is being done on these rich mines, they conclude, with almost absolute certainty, that the owners fear they will work their mines out. It requires no shrewd man to make the assertion, that it is folly to allow well developed mines to remain idle waiting for a purchaser, when there is sufficient ore in sight, if properly worked, to pay the price asked.

Having spent several days in examining the mines in this district, I will give you a few items regarding some of the best, thinking it may probably be of interest to some of your readers to know more concerning them.

### The El Dorado South

stands first in the way of developments. It is one of the oldest locations in the district and is owned by the Hon. Robt. Mullen, and Messrs. Leonard and Singletary, who purchased it from the locators soon after its discovery. It has been worked ever since, paying all the expenses for working and improvements, and yielding its owners large profits. The mine has been thoroughly prospected and shows now larger bodies of richer ore than any other mine in the district. The vein matter is in places 60 feet between foot and hanging walls, though only about six feet of it is solid quartz. Rich deposits of chloride ores, however, are found outside of this solid quartz, mixed with broken slate. An incline follows the vein down on the hard quartz, 365 feet, extending 100 feet below the water level.

The vein is found continuous from the surface. At the water level adits are cut north and south—210 feet in all—showing a solid front of ore varying in width from 2 to 9 feet. This body of ore extends to within 60 feet of the surface, where it was first found in the incline. The incline has been well timbered throughout its whole length. Hoisting apparatus, and pumping machinery, with a fine 25-horse power engine, have been erected at its entrance. A great deal of other work has been done on this mine; but at present the work is confined to the 265-foot levels, from which ore is being taken as fast as teams can be procured to haul it to Austin, where it is worked, yielding \$200 per ton. The owners of this mine say that in a short time they will be able to take from it \$30,000 per month.

### The Arizona Mine

is on the same vein with the El Dorado. It belongs now to Messrs. Vellmer and Canfield; contains 600 feet, and was located in 1866. It was owned and worked for three years by a Mexican, Antonio Bergues, who took out \$25,000, working the ore in an arasta. It was purchased about one year ago, by its present owners, who have secured on it an U. S. patent. The pay ore is found in chimneys, three of which crop out on the surface and run in a southerly course through the ledge, growing wide and narrow alternately, so as to form what the German miners call Tinsengange. Two other chimneys of rich ore have been found, which were not visible in the croppings. This mine has been steadily worked during the past year, without levying one dollar of assessment, has paid all expenses and yielded large dividends to its owners. It now shows richer bodies of ore than ever, and the proprietors are confident that they have enough ore in sight to yield them large profits for 8 months to come. The mine can be worked 400 feet below the present deepest workings, before reaching the water level. The ore is worked at the Stetefeldt mill, and is all roasted, though a good portion might be worked without, it being very free from base metal.

### The Silver Bend Co's Mine

comprises 2,000 feet on the celebrated Transylvania ledge. It is the most southerly location on the vein. This mine has been worked more thoroughly than any other in the district. Eight hundred feet of it, only, has been prospected. The ore from this portion of it has nearly all been extracted to the water level. An adit is now being run to develop the southern portion of the mine, which is expected to prove equally as good as that already worked. The Silver Bend was for a long time the chief support of the district, and had other mine owners displayed the same energy and skill in working their mines, that Mr. Canfield has, Belmont would now be a more prosperous camp. The yield during the last year, has been \$130,000. The ore from this mine has been worked at the Stetefeldt mill, of which R. B. Canfield is sole owner and proprietor. The mill was erected in the fall of 1870, has 10 stamps, 8 Freiberg barrels and 2 large settlers. It reduces between 9 and 10 tons of ore per day, and has in connection with it a Stetefeldt furnace, which has a capacity for roasting one ton per hour. It has chloridized the ores, according to statements of average chlorinations made each month, to within 88 and 90 per cent of the assay value. The furnace works in every respect to the entire satisfaction of its owner.

### The Monitor Co's Mine

is on the same ledge with the El Dorado and Arizona, and shows as rich a deposit of ore as any mine in the district. It will, no doubt, in a very short time produce more bullion than any other mine here. Although it was located some years ago, yet it is only very recently that it has produced anything, or shown any bodies of ore worthy of notice. It was purchased about the 1st of June last by Messrs. Sharp, Stein, Roberts, Flagler, and Carroll. Since that time 31½ tons of ore have been worked in Austin, at the Manhattan mill, yielding \$20,235.60 or \$642.40 per ton. Eighty tons more of equally as good ore are now at the same mill, awaiting reduction. The mine is worked through a tunnel 250 feet in length, which tap the ledge 240 feet from the surface. The ledge shows no croppings and was prospected through this tunnel by an adit run from where the vein was first found, 250 feet. The width of the ledge is from 2½ to 30 feet between the walls.

This is doubtless enough in regard to mines of this locality for one time.

H. R.

Belmont, Nye Co., Nev. Sept. 12, 1871.

## Bull Run District.

EDS. PRESS:—All of the mines in this district that are being worked are looking well, and the pack trains are busily engaged in transporting ore from here to the Vance mill at Mountain City. I understand that a rich strike has been made in the Blue Jacket mine, and one also in the Franklin. The Tiger ledge is looking well, and has considerable ore on the dump; which they will ship to Mountain City for reduction. Their last 8 tons yielded \$187 per ton. Good ore is being extracted from the Oregonian, and prospects ahead are excellent. The tunnel on the Lady Don is being pushed with energy. The Johnson mine shows a good body of ore. It is reported that ex-Governor Chellis has made a sale of his mine to an English company for a good figure. I think that most of the mines will be closed up during the coming winter.

CHLORIDE.

Bull Run, Sept. 14, 1871.

## Cotton in California.

We have received another very fine sample of cotton from the Merced plantation of Messrs. Buckley & Strong, and are assured that this experiment has resulted in a complete success, although the season has been the most unfavorable which we have had for many years. A large part of the ground had to be planted the second time, on account of the dry hot winds which, it will be recollected, swept over the country with such damaging effect in the early part of the season. These winds cut down all tender vegetation within the reach of their direct sweep. The ground planted was less than one half that originally intended, on account of the dryness of the season. There has been only a very small portion of the ground irrigated—some 10 out of 70 or 80 acres planted.

Col. Strong is quite confident that he can produce the finest quality of cotton in this State. The sample before us affords ample proof of that. It can also be produced here, the Colonel thinks, 25 to 30 per cent cheaper than it can be grown in the Mississippi valley, on account of the many advantages incident to our climate and other conditions. The planter is not troubled here with rains as he is there, at picking time, which not only seriously interferes with the work of picking, but is also productive of much loss in staining and otherwise damaging the fibre. We have here no army or cut worm to encounter, and but little care or cultivation is needed to keep down the grass which the summer rains of the Southern States so persistently nourish to the great disadvantage and cost of the planter. Cotton cannot be raised there for less than 12½ cents; while eight cents and possibly six may cover the expense of cultivation here.

It is thought that 10,000 acres will be platted with cotton in Merced county, next season, if this experiment turns out according to present promise, and if Friedlander's irrigation canal is completed in season to put out of the way all danger from another dry season. We cannot feel otherwise than confident that we are on the eve of the development of a new agricultural industry on this coast, which will eventually be worth as much to the State as either wheat, wine, or wool.

NIAGARA FALLS.—Scientific men are anxious for a careful survey of Niagara Falls, in order that the changes which are constantly going on there, by the wearing away of the rocks, may be accurately noted. It is also proposed that large photographs be taken of the various points subject to change, with which future photographs, taken from the same points, may be compared.

These falls are making a slow, but sure and steady march up the river; but their beauty and grandeur will never close until the precipice over which they rush shall, in its recession, reach and break through the river-rock and drain off the water of Lake Erie—a result sure of accomplishment at some future time. A series of photographs showing the different phases which the falls must assume in this retrocession, would in future ages be regarded as of priceless value.



# MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**NEARLY READY.**—Alpine *Chronicle*, Sept. 19th: The Whelpley & Storrer's furnace at the Monitor & Northwestern Mill is nearly ready to start up.

**PROGRESSING.**—Work on the new mill of the Schenectady Co. is progressing finely.

**TARSHISH.**—Monitor *Miner*, Sept. 16th: In the Monitor No. 3 mine on this lode good ore continues to be found at several points. The Silver Glance mine is also showing good ore on two or three levels. The better known Schenectady mine on the same lode is opening out valuable deposits in many directions.

**GLOBE.**—A Steam Pump is to be put in at once and the work of going down on the copper vein, resumed.

**THE NEW MILL** in the lower end of town is being pushed ahead rapidly, a large force being daily at work.

### BUTTE COUNTY.

**QUARTZ MILL.**—Oroville *Record*, Sept. 23d: Col. R. F. Derrick, is erecting a quartz mill of 4 stamps, at Inskip. He has found a large vein of quartz, that prospects well, at the head of Blowhard Ravine, upon which a shaft has been sunk to a considerable depth. The mill is located some 200 or 300 ft. below, and will be propelled by an over-shot wheel, nearly 40 ft. in diameter. The tunnel from the mill to the vein, will be through the bed rock, a species of decayed sandstone, easily penetrated.

**A QUARTZ VEIN** has been discovered near Humbag Valley road, 8 or 10 miles from Carey's Station, which discloses an abundance of crystallized quartz and free gold. Parties are at work, prospecting and developing the ledge. On Saturday last, about \$500, free gold, was taken from the claim.

**ALDER CREEK CO.**—Chico *Enterprise* Sept. 23d: This Co.'s claims, in the Inskip Dist., are prospecting richly. We have seen specimens of coarse gold taken from surface diggings yielding at the rate of 30 cents to the pan.

A few rods below the Alder Creek Co.'s claims, one man with a rocker is taking out from \$8 to \$10 a day.

In the same dist. Williams & Ducey have opened a claim about a mile below Inskip which is yielding handsomely.

### CALAVERAS COUNTY.

**WHAT CHEER.**—Mok. Hill, *Chronicle* Sept. 23d: Everything is being put in readiness for washing. Dump-boxes, and sluices are being constructed.

**WOLVERINE.**—Operations are progressing favorably. The shaft is down 150 ft. It is the intention of the Supt. to put it down 200 ft. before running levels.

The Petticoat has been started up. The water has been taken from the mine and work commenced sinking the shaft. A. E. Kennedy has a contract to put the main shaft down 300 ft deeper which will make it 500 ft. in all. The sinking of the shaft will thoroughly prospect the mine and determine whether the Railroad Flat leads are permanent or not.

**PRUSSIAN HILL MINE.**—On Wednesday we were shown the gold yield of 100 tons of quartz taken from that lode. The rock netted 180 ozs. of gold, worth nearly \$3,100, a trifle over \$30 per ton, unassorted rock. The Co. have a large quantity of quartz in eight, a considerable portion of which will pay \$200 per ton. Work is being vigorously prosecuted.

**GWIN MINE.**—Owing to the scarcity of water but 16 stamps are in operation. The sinking of the main shaft, continues without interruption, and has reached 478 ft. At that point the lode shows better than ever, and the rock being taken out averages more per ton than any previously crushed. 30 additional stamps, making 76 in all, are to be immediately erected.

**ANGELS.**—Cor. San Andreas *Citizen*, Sept. 23d: The Angels Quartz Mining Co. are operating their 30 stamp mill night and day, crushing rock taken from over 400 ft. below the surface. Some of this rock is very rich, showing free gold.

Messrs. Foster have found another rich pocket in their mine. The Stickles Mine has been sold, and hopes are entertained of the erection of another mill soon.

**CUNNINGHAM MINE.**—Four months ago a Co. of miners took a lease of the mine. They have since run a tunnel and struck the ledge, finding first rate looking rock.

**DAM RAISING.**—Nevada *Gazette*, Sept.

22d: The North Bloomfield Gravel M. Co., have filed a notice that they propose to raise their dam at Big Cañon Creek 100 or 135 ft. higher than at present.

### EL DORADO COUNTY.

**GOOD HOPE.**—Downieville *Messenger*, Sept. 23rd: This mine is now taking out splendid rock.

### LOS ANGELES COUNTY.

**BULLION.**—Los Angeles *News*, Sept. 23rd: 364 bars from the Union works, Cerro Gordo, were received yesterday, on the 21st: 215 bars 17,841 lbs were received from the same place.

One hundred bars of silver-lead bullion were received yesterday from the O. L. S. L. Co's works. The aggregate weight was 8,053 lbs.

**BY TELEGRAPH.**—Sept. 21st. Rich silver and galena quartz was brought in yesterday from the new mines found in the mountains, 8 miles from Desert Springs, on the Owen's River road, 80 miles from Walker's Pass.

### NAPA COUNTY.

**Calistoga Tribune**, Sept. 21st: Another rich quicksilver mine has been discovered on Mt. St. Helena, about ten miles from this place. We have seen some of the ore, which is rich in native quicksilver. A company has been formed and work commenced on the mine, a tunnel of 40 ft. having been run in.

### NEVADA COUNTY.

**RUMORED SALES.**—Nevada *Transcript*, Sept. 24th: It has been rumored that several of the best mines in this county have been handed to English companies, and the sales will be completed in a few weeks. One company sells for \$1,000,000, another \$450,000 and another at \$300,000.

### SAN DIEGO COUNTY.

**BULLION.**—San Diego *Union* Sept. 16th: Bullion amounting to \$5,500, was shipped through W. F. & Co.'s Express yesterday, to S. F. principally from Julian.

**RICH ROCK.**—McMahan's mill at Julian City has just cleaned up, after crushing 30 tons of Golden Chariot ore, which yielded \$4,630, an average of \$156 to the ton. The mill is engaged upon Redman ore, over 200 tons being ready for crushing. The owners of the Kentuck lead are taking out rich rock.

**ITEMS.**—All the mills at Julian and Banner are busy at present. The Antelope recently started crushing ore from their own lead, which will go \$50 to the ton. They have plenty on the dump, which awaits crushing. The mill of Gunn, Reynolds & Co. is now running on "San Diego" rock. The Stonewall Jackson mill is always busy and is now at work on ore taken from the "Stonewall." This lead is full 12 feet wide and the ore will average \$30 to the ton. The well from which the mill receives the water it uses, is 100 feet deep, and is to be made 100 feet deeper. The Parsons' mill, is crushing ore from the Owens mine, having just finished a lot of ore from the Helvetia. This latter Co. has a large amount of ore on the surface, which will be crushed at the mill of Gunn, Reynolds & Co.

### SISKIYOU COUNTY.

**PAYING WELL.**—Yreka *Union*, Sept. 23d: The Oak Grove claim on McAdam's Creek is paying well. Carroll & Co.'s claim is not being worked.

### TRINITY COUNTY.

**PREPARING FOR WINTER.**—Weaverville *Journal* Sept 23d: All the miners in Weaver Basin are now engaged in cutting bed-rock and doing other work in the way of preparing for the winter.

### YOLO COUNTY.

**COAL IN CAPAY VALLEY.**—Woodland *Mail*, Sept. 21st: S. Chase, has discovered a ledge of coal, on the west side of the valley. The vein of coal is supposed to be deep enough to work well and the quality is good. It was tried at the blacksmith shop at Capay City, and proved to be excellent. Mr. Chase says that he thinks the coal is inexhaustible. R. Anderson, has also discovered a ledge of fine coal, and has proved it to be of the best quality for welding iron.

## Nevada.

### EUREKA DISTRICT.

**Eureka Sentinel**, Sept. 19th: \$30 silver ore is being thrown over the waste dumps in New York Cañon, for lack of cheap means of reducing it.

**STRIKE.**—W. Mooney and J. Magnire, after two days' prospecting in Secret Cañon found fine ore which assayed \$1,000 per ton in gold and \$640 n silver to the ton.

**MARYLAND MINE AT PINTO.**—A new strike has been made in the old shaft of great richness and extent.

**EXCELSIOR AND GASLIGHT.**—These are the names of two mines on the east slope of Prospect Mt., for which the owners have been offered \$30,000 but desire \$40,000.

In the Excelsior there is a drift driven into the hill, which shows a face of 7 ft. in width of ore, containing both silver and gold.

**DIAMOND MINE.**—The owner has a width of 10 ft. of solid ore at a depth of 20 ft. It is composed of carbonates well mixed with galena, and assays into the hundreds.

**NEW FURNACES AT THE RICHMOND.**—Work is being rapidly pushed forward to completion on these furnaces, and the east or back wall is completed. The erection of the furnaces proper will occupy but little time after starting, as the stone is being got out ready to be placed in position.

**LITTLE GIANT MINE.**—Major McCoy has let a contract to run a tunnel into Prospect Hill to strike the vein of the Little Giant in New York Cañon. The contract calls for 1,000 ft. and when completed will develop a fine body of ore.

**NEW MILL.**—A 20 stamp mill is to be erected at Eureka. The site was purchased on the 20th; and men put to work grading.

**SALE.**—The General Lee Co's property has been sold for a large sum; \$20,000, is to be paid down in cash, the balance on or before Feb. 1st. 1872.

### ELY DISTRICT.

**MEADOW VALLEY MINE.**—Ely *Record*, Sept. 19th: This mine is shipping between 60 and 70 tons of ore to mill per day. The levels and stopes are looking well, and new bodies of rich ore are being discovered. The mill at Dry Valley has only been running 15 stamps for a week or more past, owing to a breakage in the machinery.

### HUMBOLDT.

**NEW MILL STARTED UP.**—Unionville *Silver State*, Sept. 22nd: The new quartz mill, erected by the Batavia & Pacific M. Co., Relief Dist., was started up a few days since, and worked satisfactorily.

### WASHOE.

**AUBURN MILL ROBBERED.**—Reno *Journal*, Sept. 23d: About three o'clock Monday morning, two men, disguised, entered the Mill, bound and gagged the amalgamator, the only man on duty, then took the bullion almost red hot from the retorts, and placing it in a sack made away with it—about 170 lbs valued at \$1,800. Hotly pursued by officers they buried the bullion, all of which was recovered, and one of the robbers arrested.

**CROWN POINT.**—Gold Hill *News*, Sept. 22d: At the 1,200-ft. level of this mine the ore body is found to extend 60 ft. farther north than in the level above, and it is of better quality. They have drifted into it over 30 ft., and it looks better.

Last week the mine yielded 1,400 tons of ore, valued at \$54,500. The Hale & Norcross yielded 609 tons. The Savage yielded 820 tons, the average assays being \$32 40 per ton.

**CALEDONIA.**—The good body of ore developed at the 400 ft. level of this mine is looking and yielding well. The Sapphire, Ione, and Gold Hill Quartz mills are all being run on ore from the Caledonia.

### WHITE PINE.

**BY TELEGRAPH.**—OUTSIDE DISTRICTS.—The mines 4 miles north of Schell Creek, at what is called North Camp, are being vigorously worked, and are looking as well if not better than the croppings indicated. The South Camp, 12 miles south, from the fact of the extraordinary richness of the ore on the surface, is perhaps attracting more attention than those immediately surrounding it.

Two miles south, is located the town of Queen Springs, surrounding which are some of the best mines in this locality, including the Nutmeg, Citizen, El Capitan, Silver, Chariot, and Leviathan. The Leviathan, recently located, is reported to be one of the finest mines ever discovered in Nevada. All these mines show upon the surface the same character of ore, namely: horn and native silver.

**ECLIPSE MINE.**—The prospects continue looking well. The size of the ledge is 5½ ft. in width—3½ of high grade ore.

**ORE PRODUCTS OF HUMBOLDT Co.**—The number of tons of ore extracted and worked in the county, including that shipped abroad during the two years preceeding June 30, 1871, was 22,874 tons giving an average yield of \$107.31 100s per ton and making in the aggregate the sum of \$2,448,246.

**MILL CITY.**—Cor. same: Central Dist. continues to improve. Clark & Bro. contemplate erecting a mill for the purpose of working the ores from their mines. D. Merritt lately sold his interest in 10 ledges for a large sum. J. Hendria, on the first of last July shipped 6 tons of rock from the De Soto, and returns received Saturday informed him that it had worked \$417 to the ton.

F. F. Osbiston shipped from the same

mine 71 tons of third class ore which proved much richer than was expected, and it is said will consummate the sale of the mine.

**GALENA.**—The Butte mine and mill is at a stand-still, resting under an attachment. The Copper mine still continues to yield its usual quantity of ore.

The White mine, is thought to be one of the best mines in the State.

**DUN GLEN.**—Cor. Winnemucca *Register*, Sept. 23d: In the Tallula mine, a tunnel has been run to strike one of their veins; they are still at it and are now near where they expect to strike the first vein of a series of lodes which show prominently in the upper tunnel. The ore resembles the Sheha, and shipments have been made which yielded from \$5 to \$800 per ton.

Work is going on in a small way on the Anburn, Lady Godiva, Dolphin, and Cambria claims, all new discoveries, which show some very rich ore. The Old Langsyne mine is being put into working shape. Sprague & Co. are erecting the new quartz mill at the same place where the Langsyne mill stood.

### REESE RIVER.

**EL DORADO SOUTH.**—Austin *Reveille*, Sept. 22d: 25 tons of ore just worked at the Manhattan mill, yielded an average pulp assay of \$402.50 per ton.

A big strike has been made in the upper level 240 ft. from the surface and 90 ft. south of the main incline. The ledge is about 4 ft. in width and composed of chlorite and stetefeldite, several assays of which gave an average result of \$2,472.56 per ton, selected ore. There is now upon the dump 3,000 tons of rock that will assay from \$70 to \$150 per ton.

**PROSPECTORS.**—Judge McKenney, R. H. Egleston, H. W. Remington, and W. Remington, left town this morning on a prospecting trip to the range of mountains beyond Mammoth Dist.

## Arizona.

**BRADSHAW DISTRICT.**—The shaft on the discovery of the Tiger lode was down 90 ft. Near the bottom a drift was run 40 ft. north; all the rock taken out contained some native silver, and black sulphurets in abundance. A shaft 450 ft. north has been sunk 39 ft. The rock is similar to that of the Discovery; 800 tons of ore have been taken from these shafts and 20 men are at work on the ledge. The shaft on Beardslee and Co's claim is sunk 60 ft. Select specimens from the Gen'l Crook and La Plata lodes yielded \$2,000 to the ton.

## Colorado.

**CLEAR CREEK Co.**—Cor. Central *Register* Sept. 20th: The Comet lode is now in a fair way to be ranked with the richest in the county.

A limestone ridge has been discovered near Montezuma. The stone is hard blue limestone, and makes excellent lime.

Palmer & Nichols shipped on Tuesday a silver brick weighing 775.30 oz., 812 fine, \$717.99 coin value.

A silver brick from the International mill, weighing 1,170 oz., 819 fine, worth \$1,245.40 coin, from Belmont ore, has been shipped.

**QUARTZ VALLEY.**—The Laughran boys are working the Robert Emmet lode with good results. The shaft is 40 ft. deep, carrying a crevice of pay ore from 12 to 14 inches in width, that yields 4½ oz. per cord under stamps.

**GRAND ISLAND DISTRICT.**—Central *Herald*, Sept. 13th: The Elgin lode is producing a large quantity of ore averaging 103 ounces of silver per ton; 10 tons are on the dump. Mt. Vernon has a large quantity of quartz awaiting reduction.

Forty tons ore are raised a week from the Cariboo mine. The crevice in the main shaft is 5 ft. wide without waste rock; 40 miners are employed in the lead.

Rich lodes are being discovered about Dayton.

Mammoth lode has developed a crevice that assays 600 ozs. in silver per ton. Spotted Tail has been leased and is turning out rich gold ore.

**KIMBER & Co's Polar Star Mill**, 32 stamps, in Black Hawk, runs without intermission, are crushing ore from the Gunnell mine; 12 are running on quartz from Stalker's claim on the California, 8 on Kent Co, and 4 on Whiting ore. The Kimber & Fullerton 15 stamp mill on North Clear Creek is employed on Gregory Second and Puzzle. Grinnell lode is being extensively worked again and is yielding very rich ore.

**MEAD** is running 50 stamps at his mills in Black Hawk on custom ores, principally from the Kansas lode.

An assay of surface quartz from the Switzer lode, gave 434,20 100 oz. of silver per ton (\$564.46). A tunnel is being driven into the mountain to intersect the lode.



Caribou Post, Sept. 19:—It is confidently stated that the losses of the Trojau mine will put up a good stamp mill at Cardinal. LODES.—The Magnolia is attracting attention as a saleable mine. It is opened 20 ft. to a well-defined crevice of rich sulphurets of silver.

The Peabody, a parallel vein, has the main shaft 30 ft. deep. This crevice, carries several streaks of rich sulphurets. In the Sherman a new shaft is being sunk 70 ft. west of the main one, where a large body of surface silver quartz is found near the surface. This is being piled on the dump for market. The main shaft is 70 ft. deep.

## Idaho.

Brown & McGuire continue to take good paying ore from the Little Giant. Peck has again commenced work in the Belle Peck shaft, and is preparing to run his tunnel, and also to take ore from the Udola & Tallula Peck. Operations continue in the Morning Star, Noonday, South Extension thereof.

WARREN'S CAMP, Idaho Co.—Cor. Lewiston Journal, Sept. 9th: Mr. Ironsbeck has 20 men employed in and about the Rescue mill and mine. The ledge is over 2 ft. in width on an average throughout the mine. The quartz now extracted is superior to any found in the ledge. There are 50 others in the district, some of which are superior in gold and silver. Placer mines exhibit an increase in richness.

THE HIO JACET is running night and day, crushing rock from the Rescue ledge, and from indications the yield will be good. They have about 200 tons of the ore at the mill.

## Montana.

Helena Herald, Sept. 14th: The Big Ditch, covering the gold placer fields about Helena, the joint property of Judge Truett and J. S. Atchison has passed entirely into the hands of the latter gentleman for \$15,000.

NEW SILVER MINING ENTERPRISE.—The Imperial S. M. Co., has been organized for the purpose of working the mines of Phillipsburg. They have leased the Saunders Co.'s works and mines at Flint Creek, and other valuable property is now being negotiated for, with good chances of its being obtained.

ITEMS.—Several drains are being worked night and day on deep ground. Rothschild, Edinger & Co., are putting in a bed-rock flume at an expense of \$12,000.

WASHINGTON GULCH.—Cor. same: Sevens, in Clark Gulch, is taking out \$16 per day to the hand and upwards. Stiles, Brigham & Co. are working 4 hydraulics, which pay from \$10 to \$15 per day to the hand. Kroger & Co., are driving ahead in Hog'm with success.

EMERY.—Deer Lodge Independent, Sept. 15th: Mr. Stanchfield 4 miles below Silver Bow, has discovered a strata of very fine emery 18 inches thick, which has proved to be an excellent article for polishing glass, cutlery, silverware and jewelry.

MEADOKER CO.—Helena Gazette, Sept. 18th: Nothing has been done in Trout Creek since the cave in the drift of the Co. Little work is being done in New York gulch, although some claims are doing well in the upper dist. In Oregon gulch several claims are turning out good pay. In Cave gulch but few miners are at work except on the foot hills near the mouth. Hornbuckle and Marshall are among the most successful miners on the bar. Stafford & Co. have made some good runs.

## New Mexico.

BULLION.—Las Cruces Borderer, Sept. 7th: 490 oz. of silver were brought down on Monday from Silver City. On the same day T. J. Bull shipped east \$1,325 in gold from Pinos Altos.

## Utah.

BULLION.—S. L. Tribune Sept. 22d: W. F. & Co. received and forwarded, during last week, from Pioche and East Cañon (mainly from the former), \$100,000 worth of fine bullion; on the 18th, they received 2 bars, worth \$2,493 from East Cañon and 1 bar from an anarasta known as the Ophir mill, worth \$367.33; on the 20th W. F. & Co. shipped to N. Y. 5 bars of fine bullion from the Meadow Valley Works at Pioche worth \$7,217.97, and received one bar from the Pioneer mills at East Cañon worth \$1,157.97. From Sept. 1st to the 19th, the amount of bullion and ore shipped from this City foots up as follows: East, 160,000 lbs of ore; 380,000 lbs of bullion. West, 560,000 lbs of ore; 80,000 lbs of bullion.

SALES.—Col. Taylor & Son recently purchased an interest in the Chadbourne and Buckeye mine for \$7,000. They have purchased in addition 400 ft. in each of the

above lodes, 400 ft. in the Christopher Columbus, for \$10,000. They have sold property in the Bingham for \$25,000.

OPHIR DIST.—The Brevoort mill in East Cañon is a perfect success. Two or three different kinds of ore have been tried and all been successfully worked. That of the Velocipodo, considered very refractory, has been treated without difficulty. A portion of the original interest has been sold to two young men from the Eastern States, who bring \$30,000 to complete the enterprise.

The Pioneer mill is running regularly on Tiger ore; and there is sufficient ore in that camp to run 3 mills the year round.

The Webster shaft, down on the Mountain Lion 60 ft., displays a handsome vein of chloride ore 5 ft. in width.

The Virginia, worked by a tunnel, is taking out 5 tons of ore daily worth from \$100 to \$300 per ton. The Co. has 10 tons from this mine worth \$1,000 per ton.

The Lizzie, 40 feet down, has a vein of ore matter 8 ft. thick; assays made average \$139 per ton.

The Occidental sunk 60 ft., shows a lode 5 ft. in a breast, which has been drifted on 100 ft. The ore is a rich chloride.

The Tampico, Silveropolis, Grand Turk and Norman are looking well. The Norman is owned by T. W. Cooke. He has reached a depth of 50 ft., and has ore that is worth on an average about \$200 per ton.

LITTLE COTTONWOOD.—The tramway of the Flagstaff is in running condition and is 300 yards long.

Two good prospects have been discovered within the last few days near Alta City. One of these is known as the Yreka, and the other as the Henry Clay.

C. Brewer has made a discovery near the Chicago Hill in East Tintic. A nice vein of ore has been struck which it is thought will hold out.

Another party has made a similar discovery in the same part of the dist. out of which they have taken a block of galena weighing 300 lbs.

The shafts on the Sunbeam are being successfully worked. The mines on Eureka Hill, owing to lawsuits, are mostly at a stand-still.

The furnace at Homanville is running regularly. Another furnace is going up at Diamond.

OPHIR.—Cor. same: A blast in the Irene, to-day, uncovered a deposit of fine ore of the milling class, and good judges say much of it is \$200 ore.

KELTON.—Cor. Corinne Reporter, Sept. 18th: The Black Pine mines, are attracting considerable attention, owing to a sale made last week by Doc. Rice and Nichols, to Mr. Johnson and associates, for \$50,000—\$12,500 being paid down.

LAKE SIDE DIST.—S. L. Review, Sept. 21st: Mr. Sevier, after going down 22 ft, has struck 4 ft. of good ore.

PARLEY'S PARK.—The Walker & Webster mine is ready to ship ore. The Flagstaff is prospecting finely, having a large body of ore in sight in the shaft. The Norfolk at 30 ft., has a ledge 5 ft. wide; tunnel East 15 ft., have struck another ledge of superior quality of ore.

LION HILL.—The South side is attracting considerable attention. Several locations have been made by an English Co. Two of them show very well. One, the "Bateson Lode," opens with a black spar similar in appearance to the rich Arizona ores.

A tunnel is in contemplation to tap Lion Hill from the east side, running for the main body of ore struck at the surface.

STOCKTON ITEMS.—Metropolitan.—Working 3 shifts; 15 men taking out a large quantity of good ore.

ST. PATRICK.—8 men at work, have plenty of ore in sight, but are now drifting to facilitate future working.

GRAND CROSS.—Working 8 men.

BOLIVIA.—Promises to be one of the leading mines of the dist., as the ore now being hoisted is good.

PAUL PRY.—Running a tunnel for air to their shaft and to facilitate working; they have excellent ore and plenty of it.

TUCSON.—Not working, but has a fine vein of rich galena ore.

FIRST NATIONAL.—Working 6 men on a good vein of ore.

PUTNAM.—Working 10 men. Have good ore but are now developing.

OUR POPULATION.—Forty millions has been the figure generally set down as the population of the United States in 1870. The census figures report 38,500,000. We may fairly charge the war of the rebellion with the missing two and a half million, in the depreciation which it produced in the arrival of emigrants, deaths caused by violence, and disease contracted in the armies, and in the lessened rate of births.

## Mining Stock Market.

THURSDAY EVE., Sept. 28, 1871.

The meeting of the Ophir Copper, Silver, and Gold Mining Co. announced under the appropriate head below, is for the purpose of taking into consideration an increase of the capital stock from \$375,000 to \$1,000,000. The last weekly report of the Chollar-Potosi shows 420 tons of ore extracted, assaying \$43.11 per ton. The officers elected at the meeting of the Gen'l. Lee Mining Co. were: President, Ira G. Hoyt; Secretary, C. F. Schultze, and Trustees Messrs. Hoyt, Schultze, Patridge, Rushman, and Cline. The North Star Co. elected as Trustees, Messrs. Harmon, Bell, Browne, Gashwiler, and Paul. On September account \$77,700 have been received from the Meadow Valley mine; this and the Raymond & Ely are reported to be in excellent condition. At a meeting of the Trustees of the North Star mine, A. P. Harmon was re-elected (President); W. C. Ralston, (Treasurer); and D. Jennings, Secretary. The Meadow Valley Extension Company have elected the following Trustees: L. A. Booth, (President); C. T. Hamilton, N. C. Paddock; M. F. Game, (Secretary); and W. H. Clark, (Superintendent.) The Trustees of the Magnolia, appointed at last meeting, are Messrs. Teese, Copp, Mesagaces, Falk, and Rosener. For the week ending September 23d there were extracted from the Savage mine 755 tons of ore; average assay value \$28.30. Raymond & Ely still continues a favorite. On September account \$11,700 have been received from the Caledonia mine and \$85,000 from the Meadow Valley. Trustees of the Imperial Consolidated Co., elected to-day, are: Messrs. Harmon, Sharron, Fry, Weller, and Dobinson. September receipts of the Raymond & Ely mine aggregate \$148,257 equal to \$6,177 per day; the last weekly run showing the highest yet, an average of \$7,140 per day. Overman continues to be the feature in the Stock Board, and there is also a marked improvement in Belcher and Segregated Belcher.

Alpha	Sept. 21. Highest.	Lowest.	Sept. 23. Adv.	Dec.
Amador	290	290	—	—
Belcher	285	320	285	365
Chollar-Potosi	314	324	28	234
Cons. Virginia	16	16	—	—
Crown Point	320	330	300	305
Nancy	54	8	54	8
Empire Mill	—	25	17	234
Eureka	174	164	14	—
Golden Chariot	—	104	96	99
Gould & Curry	108	114	96	112
Hale & Norcross	97	114	96	112
Ida Elmore	—	4	3	4
Imperial	—	40	36	—
Kentuck	160	163	154	167
Kentuck	160	163	154	167
Meadow Valley	224	344	23	34
Occidental	—	22	22	—
Ophir	23	23	74	22
Oriz. Hill	7	36	16	44
Overman	17	36	16	44
Savage	42	49	40	41
Sierra Nevada	—	184	174	184
Silver Wave	—	184	174	184
Yellow Jacket	57	53	53	—

Alpha Cons.	BID.	ASKED.	Ida Elmore	BID.	ASKED.
Amador	287	12	Imperial	38	40
Belcher	305	27	Kentuck	163	164
Chollar-Potosi	370	27	Meadow Valley	324	33
Crown Point	305	310	Ophir	224	224
Oaney	8	22	Orig. and Treas.	6	34
Eureka Cons.	12	22	Savage	40	41
Eureka	20	21	St. Patrick	22	25
Golden Chariot	15	18	Sierra Nevada	—	—
Gould & Curry	86	112	Yellow Jacket	55	56
Hale & Norcross	112	112			

## Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post et.]

SAN FRANCISCO, Thursday, September 28.

SOLD LEATHER.—Eastern shipments still keep the market firm and the demand good.

City Tanned Leather, #1 B. 26c/29  
 Santa Cruz Leather, #1 B. 26c/29  
 Country Leather, #1 B. 26c/29  
 French stocks continue in great freedom and prices are easier in leading skins. The cheaper grades still continue firm. California kip and calf skins are still scarce and high.

Jodot, 8 Kil, per doz. \$30 00  
 Jodot, 11 to 12 Kil, per doz. 30 00  
 Jodot, second choice, 11 to 15 Kil, per doz. 30 00  
 Lemoine, 16 to 19 Kil, per doz. 30 00  
 Levin, 12 and 13 Kil, per doz. 30 00  
 Cornellian, 12 to 14 Kil, per doz. 30 00  
 Ogerau Calif, #1 doz. 30 00  
 Mercier Calif, 16 Kil, per doz. 30 00  
 Robert Calif, 7 and 8 Kil, per doz. 30 00  
 Common French Calf Skins, #1 doz. 30 00  
 French Kips, #1 B. 1 00  
 California Kip, #1 doz. 65 00 to 80 00  
 Eastern Wheel Stuffed Calf, #1 B. 1 10  
 Eastern Bench Stuffed Calf, #1 B. 1 10  
 Sheep Roane for Lining, #1 doz. 5 50 to 10 50  
 Sheep Roane for Lining, #1 doz. 5 50 to 10 50  
 Good French Calf Boot Legs, #1 pair. 4 50 to 5 00  
 French Calf Boot Legs, #1 pair. 4 50 to 5 00  
 Harness Leather, #1 B. 45 00 to 50 00  
 Fair Bridle Leather, #1 B. 45 00 to 50 00  
 Skirting Leather, #1 B. 34 00 to 37 00  
 Welt Leather, #1 doz. 30 00 to 50 00  
 H. L. Leather, #1 foot. 17 00 to 21 00  
 W. Side Leather, #1 foot. 18 00 to 22 00

SORE THROAT, COUGH, COLD, AND SIMILAR TROUBLES, if suffered to progress, result in serious pulmonary affections, oftentimes incurable. "Brown's Bronchial Troches" reach directly the seat of the disease, and give almost instant relief. They have been thoroughly tested, and maintain the good reputation they have justly acquired. As there are imitations, be sure to obtain the genuine.

Opera Glasses, Pebble Spectacles, and Eyeglasses, in great variety, wholesale and retail. O. MULLER, Optician, 205 Montgomery street, Russ Block, San Francisco, 7c23-3m

## Liverpool Copper Report.

We learn from the monthly copper report of Messrs. Lewis & Son, dated Sept. 1st, that the sales for the previous month were very quiet. The sales for August amounted to 1,400 tons, at from £66 10s., to £68 15s. per ton on arrival, according to brand. Quotations up to date were: Ore and Regulus, 13s. 9d. to 14s. per unit; Bars (Lots), £66 15s. to £67; Urments, £67 5s. to £67 10s.; other brands, £68 to £68 10s.; Chile Ingots, £74 to £75 per ton. Stocks of West Coast Produce equalled 17,822 tons fine, against 18,250 tons on 1st of August, and against 19,564 tons fine, Sept. 1, 1870, when quotations were—Bars, £64; Ore, 12s. 9d.; against 13,240 tons fine, Sept. 1, 1869, when quotations were—Bars, £68 10s.; Ore, 13s. 6d.; against 8,400 tons fine, Sept. 1, 1868, when quotations were—Bars, £67 10f.; Ore, 13s. 9d.; against 8,964 tons fine, Sept. 1, 1867, when quotations were—Bars, £73; Ore, 14s. 9d.

## Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.)

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	PAY	DATE OF SALE
Argenta S. M. Co., Nev., Sept. 4, \$5.	Oct. 7—Nov. 18	
Alameda Coal M. Co., Cal., Sept. 7, 50c.	Oct. 9—Oct. 30	
Bellevue, Placer Co., Cal., Aug. 30, \$1.	Oct. 3—Oct. 23	
Buckeye, Lyon Co., Nev., Sept. 11, 50c.	Oct. 16—Nov. 3	
Columbus M. & M. Co., Aug. 8, \$1.	Sept. 12—Sept. 30	
Daney G. & S. M. Co., Nev., Sept. 21, \$2.	Oct. 25—Nov. 13	
Empire Mill & M. Co., Nev., Aug. 23, \$12.	Sept. 27—Oct. 17	
Gen. Lee S. M. Co. W. P., Aug. 25, 40c.	Sept. 20—Oct. 13	
Gold Run M. Co., Cal., Sept. 5, 25c.	Oct. 10—Nov. 1	
Golden Chariot, Sept. 12, \$5.	Sept. 23—Nov. 13	
Hale & Norcross, Va. City, Aug. 21, \$10.	Sept. 23—Oct. 13	
Imperial, G. Hill, Sept. 21, \$10.	Oct. 24—Nov. 11	
Jackson, Lander Co., Aug. 30, 25c.	Oct. 4—Oct. 24	
Julia, Placer Co., Nev., Aug. 31, 50c.	Oct. 4—Oct. 24	
Kincaid Flat M. Co., Tu. Co., Aug. 4, \$5.	Sept. 20—Oct. 13	
Lucerne M. Co., Nev., Aug. 17, \$3.	Sept. 20—Oct. 9	
Mahogany G. & S. M. Co., I. T., Sept. 4, \$3.	Oct. 12—Oct. 31	
Mammoth, White Pine, Aug. 16, 10c.	Sept. 19—Oct. 9	
Metropolitan M. Co., Nev., Sept. 11, \$1.50.	Oct. 16—Nov. 2	
Miss Rhea M. Co., Placer, Aug. 3, 20c.	Sept. 11—Oct. 3	
North American Con. M. Co., \$1.31, 20c.	Sept. 28—Oct. 18	
Piermont, W. P., Sept. 4, 10c.	Oct. 10—Nov. 1	
Poconatas G. M. Co., Cal., Sept. 13, \$3.	Oct. 23—Nov. 27	
Quail Hill M. & W. Co., Aug. 16, \$20.	Sept. 27—Oct. 16	
Silver Wave, White Pine, Sept. 1, \$1.	Oct. 3—Nov. 3	
St. Louis M. Co., Nev., Aug. 17, \$3.	Sept. 20—Oct. 9	
St. Louis M. Co., Nev., Sept. 5, \$3.	Oct. 9—Oct. 25	
St. Louis M. Co., Placer Co., Sept. 23, 50c.	Oct. 26—Nov. 13	
St. Patrick, Ophir Dist., Aug. 16, 50c.	Sept. 18—Oct. 23	
Sumner, Kern Co., Aug. 16, \$3.	Aug. 15—Aug. 30	
Tumnech G. S. & O. M. Co., \$1.28, \$5.	Sept. 23—Oct. 14	
Washington & Creole, Nev., Sept. 21, 50c.	Oct. 30—Nov. 25	

MEETINGS TO BE HELD.
Belcher M. Co. .... Annual Meeting, Oct.
Eureka Consolidated M. Co. .... Annual Meeting, Oct. 9
Julia G. & S. M. Co. .... Annual Meeting, Oct. 9
Ophir G. M. Co. .... Annual Meeting, Oct. 23
Overman .... Annual Meeting, July 13
Quail Hill M. Co. .... Annual Meeting, Sept. 30
Segregated Belcher .... Annual Meeting, Oct. 3
Southern Gold Hill M. Co. .... Meeting, Oct. 31
St. Louis M. Co. .... Annual Meeting, Sept. 30

LATEST DIVIDENDS—(Within Three Months).
Black Diamond Coal M. Co. .... Payable Sept. 15
Chollar-Potosi, \$1. .... Payable Sept. 7
Chollar-Potosi, \$1. .... Payable Sept. 9
Crown Point \$10. .... Payable June 10
Eureka (Cal), \$1. .... Payable July 7
Eureka Cons., \$1. .... Payable Sept. 20
Keystone M. Co., \$2. .... Payable Sept. 16
Meadow Valley, \$1. .... Payable July 15
Nevada Valley, \$1. .... Payable Sept. 15
Natoma, div., 1 per cent. .... Payable Aug. 5
Pioche S. M. Co., \$1. .... Payable Sept. 15
Raymond & Ely, \$1.50. .... Payable Sept. 13
Redington, 1 per cent. .... Payable Aug. 5
Succor Mill and M. Co., 50c. .... Payable Sept. 15
Yellow Jacket, \$2.50. .... Payable July 10
Yule Gravel, 50 cts. .... Payable Aug. 4

\*Advised in this journal.

The San Francisco Scientific Press of July 29th has a well written communication from Mr. Murray, its agent, giving a truthful description of Gold and its uses. In connection with it is a sectional cut of our coal beds, which is an important accompaniment. The Press is an excellent paper, and is doing much in the dissemination of knowledge of our growing west.—Transcript, Golden, Cal.

TO THE MINING INTEREST.—Believing that they can thereby aid the mining interest, the managers of the Eighth Industrial Exhibition of the Mechanic's Institute request contributions of ores, minerals and metals from the mines, mills and furnaces of the coast. Such contributions will be given a prominent place, and will be labelled with details furnished of the condition, etc., of the works from which they come. The collection, if a full one, will attract attention and CAPITAL TO OUR MINES. Wells, Fargo & Co., will forward, free of charge, all such packages, to be sent before August 5th, addressed to Mechanics' Institute, care J. H. GILMORE, San Francisco.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have endeavored to obtain reputation for their prepared Cocoa, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalid use we could not recommend a more agreeable and valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicago Mills, Chicago, Belgium. 7c23-3m

N. Selbert's Eureka Lubricators for steam cylinders are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water in the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time in the saving of oil over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8v23-3m



## A FEW WORDS TO SPORTSMEN.

As the shooting season begins we wish to enter an earnest protest, not so much against sporting, as a cruel and barbarous pastime, but against the careless use of good arms, and all use of poor ones. Every year the papers have to chronicle a large number of accidents resulting from the use of fire-arms. Several have already occurred the present season. Some of these accidents result fatally, while others only maim or disfigure their victims to a greater or less degree. While many of them could not well be foreseen or avoided, the vast majority are caused by gross carelessness. That this is true we think no one will deny who has made a study of the matter.

Well! how would you help the matter? some one asks.

In the first place, be sure that you have a reliable weapon. One that has been well tested in its making, and which will bear heavy charges and rapid firing. Unless you are in the habit of handling guns, and a good judge of the article, get some one who is posted in such matters to go with you, or at least to send you to some responsible dealer.

It is well to concede at the start that a good gun must cost a good fair price. No matter how free from useless carving, engraving and varnish, the making of a good stock, lock, and barrel requires good stuff and much hard work, all of which must be paid for. Without entering into a discussion of the comparative merits of long barrels or short ones, muzzle-loaders or breech-loaders, bar or back-action locks, we insist that your gun should be selected by a competent person, and the price should be high enough to pay for good work. No doubt many cheap guns will throw shot as well as those that cost ten times as much, but those who use them run a terrible risk. At one time it is some promising boy who is killed outright, at another time the principal of a large school loses a precious hand by the bursting of one of these infernal machines.

It has been held by some that dealers in this miserable trash should be held responsible for all casualties resulting from their defects. This may appear to be a severe doctrine; but it is hard to see why men should be put under restraint in dealing in gunpowder, kerosene and chemicals, and yet be allowed to sell guns which are as dangerous as any of the above articles.

Let it not be inferred from what we have said against cheap guns, that high priced ones are of necessity good. On the contrary, many of the poorest shams are set off with much carving, varnish and fancy case, and sold for enough money to buy a good gun. The only way in which you can be reasonably sure of buying a safe new gun is to deal with a reliable gunsmith who knows what he is selling, and has a reputation to lose.

Don't have too great faith in the old English gun, which was brought over by your ancestors. Very likely if you have the breech-pins taken out, the chambers will be found worn quite too thin for safety. It is well known also that metal which is frequently jarred or strained, as a gun is when fired, finally loses much of its strength, by the re-arrangement of its atoms which gradually takes place.

If the following simple rules were generally observed, at least nine-tenths of the accidents arising from the use of fire-arms would be rendered impossible:—

*First.*—Never point a gun or pistol toward yourself, or anybody else whom you do not intend to shoot. No matter how sure you are that the weapon is not charged, observe this rule for the sake of good habits. Not only should you refrain from levelling a weapon at a person intentionally, but it is just as important that you make sure at all times, that, in case of an accidental discharge, the shot will do no damage.

*Second.*—When loaded and capped always carry your gun at half-cock. It is a

very common custom to carry the gun with the hammers resting on the caps; but it is by far the most dangerous method that could be selected, as there are three ways in which the gun may then be accidentally discharged. If the lock is a strong one, the simple pressure of the hammer will often be as efficient as a quick blow in exploding the cap. Any hard blow upon the back of the hammer will certainly discharge the gun. And lastly, if the hammer is caught by a twig, or in passing a fence, and raised a short distance and then released the cap must be fired, while if at half-cock, the hammer when released would be caught on the half-cock notch, or at worst be brought to full-cock. A gun that can be fired from half-cock, without breaking the lock, is so dangerous that no sensible person will use it a day, if there is a mechanic within reach who can repair it.

*Third.*—When getting into a carriage with a loaded gun, take the caps off. When you expect to shoot from the vehicle, this danger of carrying a gun capped, may be much reduced by putting an elastic wad, like Ely's, between the hammer and the cap.

*Fourth.*—Never leave a loaded gun in a house without its being capped, or in some way marked as loaded. We often see accounts of persons who have taken up such guns supposing them to be empty, put caps on them and snapped them at some friend whom they wished to frighten. The result of such sport is too frequently

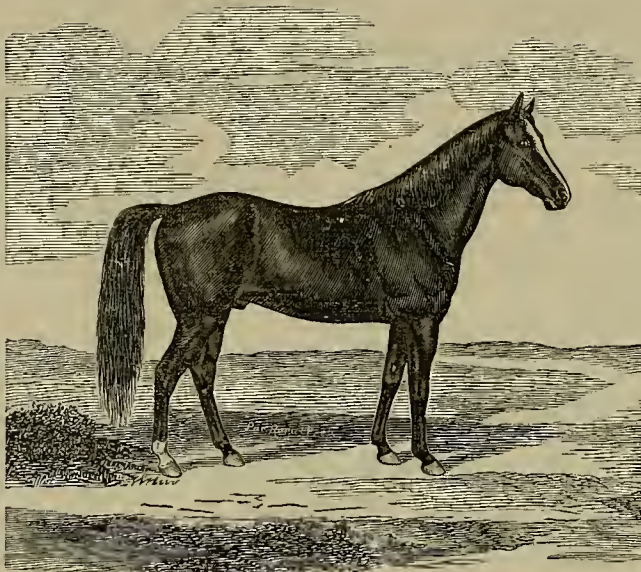
aggressive farmer of Napa, Cal., who entered this general favorite at the State Fair last week.

Our drawing is reduced from an oil painting, by D. H. Woods of Sacramento. We hope to follow this publication with portraits of other celebrated animals on this coast, thus giving the first series of finely engraved and printed illustrations of home stock in the Pacific States.

## Books for the People.

## Questions of the Day.

Henry Carey Baird, the Industrial Publisher, of Philadelphia, is one of the staunchest advocates of protection to home labor, and to him is due the issue of a great number of works on practical and scientific technical knowledge. The range of these publications includes almost every branch of manufacture, and they are such as every intelligent employer requires in daily use. The best works written abroad are translated and their contents made available to benefit American industry. His last publication is a treatise on the "Questions of the Day," written by Dr. Wm. Elder, well known in the East, as a most profound thinker. It is the result



THE CELEBRATED CALIFORNIA HORSE "LODI."

a coroner's inquest, and a verdict of "accidentally shot."

We could give instances of fatal results from the neglect of each of these rules, and we fear that any one of the readers of this article could soon make a large collection of items on the subject.

Most fathers are too careless about the quality of arms which their boys carry, and the instruction which they have as to the proper mode of handling them. Everybody beginning to shoot should have the above rules impressed upon his mind, and the perusal of some good "Sportsman's Manual" will be repaid in added safety, efficiency and enjoyment.

## The Celebrated Horse "Lodi."

We present a finely drawn and executed engraving of this celebrated racing horse, whose best time we believe has been beaten only by his competitor, Norfolk, and then by less than a full length. We allude to the three-mile heat at the State Fair, in Sacramento, September 23d, 1865, which was made in 5:27 1/4; and the last mile in 1:47 1/4. He carried at that time a 110 lb. rider. At that trial, Lodi suffered from a quarter crack in one of his fore hoofs, from which the blood spirted freely. His color is dark brown, and, as truthfully shown (by our own engraver) he is of beautiful figure. Having spent the best of his eleven years in this State, he is too well known to Californians to need any lengthy description in this connection.

Lodi's pedigree is by Yorkshire out of Topaz by Glencoe. He is now owned by Mr. Nathan Coombs, a wealthy and pro-

of about 20 years' study and preparation. The main subjects of the work are: Political economy; formation of society; civilization; wealth—the laws and conditions of its growth; sources of advancement; law of increase in population; distribution of wealth—wages, and money as an exchange of value. It also treats of paper money; commerce; trade between nations; free trade and protection; doctrine and policy of protection with the most prominent and plausible objections to the system; guarantism; and secret societies. The chapters in coöperation will be read with special interest, as they give a complete survey of the field of coöperation in connection with stores, manufactories, banks, etc., and a general view of the system in the United States. The book is neatly printed on excellent paper, and is well worth a perusal by all classes of society. For sale by A. Roman & Co., 417 and 419 Montgomery street.

## Alcoholic Liquors.

This is the title of a volume on the manufacture and distillation of alcoholic liquors, comprising accurate and complete details in regard to alcohol from wine, molasses, heats, grain, rice, potatoes, fruits, etc.; with the distillation and rectification of brandy, whisky, rum, gin and absinthe. It also treats of the preparation of aromatic waters, volatile oils or essences, sugars, syrups, aromatic tinctures, liquors, cordial wines, effervescing wines; the ageing of brandy and the improvement of spirits with directions and tables for testing and reducing spirituous liquors, etc. It con-

tains also the United States revenue regulations for the assessment and collection of taxes on distilled spirits.

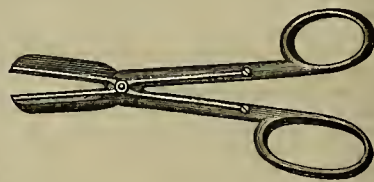
The work is translated from the French of Duplais, by M. McKennie, M. D., and is published by Henry Carey Baird. As the manufacture of alcoholic liquors is now attracting considerable attention in this country, this exhaustive treatise on the subject will be found convenient to those directly interested, as well as to the general reader. This work is illustrated, and may be procured postage free for \$10, by addressing Henry Carey Baird, 406 Walnut St., Philadelphia.

## Every Horse Owner's Encyclopedia.

This book is illustrated with nearly 100 fine engravings and treats of the anatomy and physiology of the horse; general characteristics, points, and directions how to choose one. Principles of breeding and the best kind to breed from; treatment of the brood mare and foal; training and breaking the colt; stables, stable management, riding, driving, etc. Horse diseases and the way to cure them is specially noticed. The American trotting horse is also treated of with suggestions on the breeding and training of trotters. There is also a list of stallions imported into America from the earliest dates and tables of pedigrees of celebrated trotters. The Percheron horses of which so much has been said in the PACIFIC RURAL PRESS, receives considerable attention. The engravings are well executed, and the frontispiece representing the race between "Goldsmith Maid" and "American Girl" in 1868, is cut on steel. The volume contains 582 pages, is handsomely bound, and is, as its title promises, a complete horse-owner's encyclopedia. It is for sale, by subscription only, at Roman & Co.

## Creighton's Pruning Shears.

We present to our readers to day, an engraving of a most useful little tool, for cutting off the stems of flowers or fruits, and at the same time grasping them to keep them



from falling. This will be especially useful in gathering grapes. The invention of agricultural implements in the United States is a source of wonder among people in Europe, from their variety and number, and the ingenuity displayed. Farmers now-a-days do their work with one-half the actual labor with which it was performed 50 years ago, from the facilities afforded them by the use of the numerous improved agricultural implements. Tools like the one shown in the cut become much more general in use than those of even greater importance, because they are usually within reach of all on account of their cheapness.

These pruning shears are merely an ordinary pair of shears, with the little apparatus for seizing the stems, fastened to the sides. The tool is made of two pieces of metal covering each other in the same manner as scissor blades, and the same bolt serves to fasten both the pinching apparatus and the blades. The handles are secured by means of screws to those of the shears, so that they operate simultaneously, cutting and grasping at the same time. The gripping strength can be regulated by the length of the arms. The gripping tool can be readily removed and attached when desired, and being for the most part independent of the shears, is not liable to be broken.

By means of this little tool the planter may go among the vines, and cut and grasp the bunches of grapes at once, using only one hand while the other is free. Its use will be readily appreciated by those who pick fruit for the market, or for the purpose of manufacture.

This useful implement is the invention of J. F. Creighton, Placerville, El Dorado county, and has been patented through the agency connected with this office.



## USEFUL INFORMATION.

## What Guides the Birds.

Swallows, and probably other migratory birds, return, as is well known, not merely vaguely to the North, but to the very caves they quitted on the previous year.

We might possibly explain the marvels of dog and cat journeys, by supposing the sense of smell in such animals to be (as it undoubtedly is) as powerful a guide as that of sight is to us; so that, as we find our way by remembering the appearance of walls, trees and brooks, a hound may find it by recalling the various odors of fields, and woods, and farmyards. But even if we could possibly so explain the recognition of places by a cat which has traversed them shut up in a railway van, it is clear that the theory cannot apply to those birds which, like the wild geese, soar up to the greatest distance from the smells of earth as the preliminary of their aerial voyage.

Is it, then, within the scope of credibility that to all the creatures who need such a faculty, Providence has accorded some other power altogether, some sixth sense, of which it is as hard for us to judge, as for a blind man to understand sight? Can it be that the magnetic currents to which our farmers are insensible, may, for the brutes, be as much a matter of clear perception as the direction of the wind is to us as we walk in a breeze, and that, consequently, wherever they go they have an internal compass which never deceives them, or leaves them in doubt as to whether they are going in the direction of the current or across it? I throw out this suggestion with great hesitation as the result of very long consideration of the riddle.

## Microscopic Examinations.

The air of printing offices contains particles of metal, particularly antimony. Dust taken from a rafter eleven feet above the floor of a printing office, was analyzed by Professor Sullivan, and found to contain antimony but not lead.

The air of a hair-dressing room contained scales, and minute hairs. In rooms where the machine brush is used the amount is increased.

The air of a dissecting room contained fragments and fibres, with the mark of the dissecting knife upon them. They were fibrils of muscles, yellow and white fibrous tissue, some cells, scales, and corpuscles. The air of stables was found to contain moth scales, a few pores, hair and fragments tinged blood color.

Tobacco smoke, examined by the microscope, was seen to hold little globules of nicotine twirling and flitting about in it. The statement is made that some remained on the walls of the month; when the smoke is breathed (by novices) more globules are retained in the lungs, and nausea supervenes. The globules, if found in the air distributed by a tobacco smoker, might be taken for germs.

**HOW A MAN FEELS WHEN HIT BY LIGHTNING.**—During a recent thunderstorm in Ohio, Mr. Sanford Ticknor and his hired man were crossing a field when they were struck down by a bolt of lightning from the clouds. The hired man was made insensible for twenty-four hours, when he became conscious. His only remembrance of the shock was that "suddenly the ground raised up and buried him"—at least so it seemed, but no trace of any disturbance of the earth could be found, nor any mark upon the man. Mr. Ticknor was not so badly stunned; indeed was not made unconscious at all. He describes his feelings as though he had been hit by a severe blow with a stone on the head and one foot, accompanied by the feeling that a shower of gravel had been thrown on him. He remembers a blinding flash of light succeeded by smoke. Both have recovered.

**TO REMOVE FOUL AIR FROM WELLS OR MINING SHAFTS.**—It is well known that many accidents occur to persons going down into wells and old mining shafts to clean them, owing to the noxious gas in such places. To remove the gas before descent is made into any well, a quantity of hurned but unslacked lime should be thrown down. This, when it comes in contact with whatever water is below, sets free a great quantity of heat in the water and lime, which rushes upward carrying all the deleterious gas with it; after which, the descent may be made with safety. The lime also absorbs carbonic acid in the well. Always lower a light before descending; if it is extinguished, there is still danger of suffocation.

## How To See Under Water.

The Indians of North America do this by cutting a hole through the ice, and then covering or hanging a blanket, in such a manner as to darken or exclude the direct rays of the sun, when they are enabled to see into the water, and discover fish at any reasonable depth. Let any one who is anxious to prove this, place himself under the blankets, and he will be astonished when he beholds with what a brilliancy everything in the fluid world is lighted up. I once had occasion to examine the bottom of a mill pond, for which I constructed a float out of inch plank, sufficient to buoy me up; through the centre of this float I cut a hole, and placed a blanket over it, when I was enabled to clearly discover lost objects on the bottom, and several lost tools were discovered and picked up. I am satisfied that, where water is sufficiently clear, this latter plan could be successfully used for searching for lost bodies and articles. I would now suggest that this experiment be tried on the sea; for I am satisfied that, with a craft like the Great Eastern, where an observatory could be placed at the bottom; with sufficient darkness, by the aid of glasses we could gaze down into the depths of the sea same as we can survey the starry heavens at midnight.—*Scientific American.*

**RAILROAD SIGNALS.**—It may be interesting to many of our readers to understand what the different whistles of a locomotive and the various motions of conductors mean. Here it is: One whistle means "down brakes;" two whistles, "off brakes;" three whistles, "danger." A rapid succession of short whistles is the cattle alarm, at which the brakes will always be put down. When a conductor gives a signal by a sweeping paring of the hands, on a level with his eyes, it means, "go ahead." A downward motion of the hand, with extended arms, "stop." A beckoning motion of the hand, "to back." A lantern raised and lowered vertically, is a signal for "starting;" swung at right angles or crossways the track, "to stop;" swung in a circle, "to back the train." A red flag, waved upon the track, is a signal of danger; so of other signals given with energy. A red flag hoisted at a station, is a signal for a train "to stop;" stuck up by the roadside, it is a signal of danger on the train ahead; carried unfurled upon an engine, a warning that another engine or train is on its way.

**MAKING CANDLES.**—Many of our farmers who study economy in their domestic affairs, find it more economical to make their own candles than to buy them. Such persons will find that by making the wicks about half the ordinary size, and dipping them in spirits of turpentine, and drying them carefully before the fire, or in the sunshine, before moulding, they will last longer and afford a much clearer and more brilliant light than those made in the ordinary way. A small portion of beeswax, melted with the tallow, has a tendency to prevent their "running," and renders them much more lasting.

**FISH HAVE GREAT TENACITY OF LIFE.** It is believed that the carp has attained the age of one hundred and fifty years, and the pike a still greater age. A pike was caught in a lake in South Germany in 1497, on which was found a ring bearing this inscription, "I am the fish which was first of all put into this lake by the hands of the Governor of the Universe, Frederick II., the 5th of October, 1280." It weighed three hundred and fifty pounds, and was nineteen feet long.

**TO WASH HAIR BRUSHES.**—Hair brushes, however dirty, may be washed and kept good for years, without loss of stiffness, by putting a small handful of soda into a pint jug of boiling water. When the soda is melted, put in the brush and stir it about till clean. Rinse it in cold water, and dry in the sun or by the fire. The quicker it dries, the harder the bristles will be.

**ACHING CORNS.**—Why do our corns ache just previous to rains? Because our feet swell with the sudden depression in the density of the air; and the hard corn, not being elastic, is painfully stretched and pressed.

**A HOT PLACE.**—The temperature of the sun has been determined by Capt. John Ericsson, by means of his solar pyrometer, to be not less than 4,000,000 degrees Fahrenheit.

A cord of wood furnishes sufficient material for the manufacture of 800 pounds of paper. A ton of straw, 750 pounds.

## GOOD HEALTH.

## Have We a Healthy Man Among Us.

It is the custom new-a-days, in speaking of the physical condition of the American people, to assume that whatever characteristics belong to it are to be traced back to woman, and as even the casual observer perceives that we as a people, are subject to various weaknesses or disorders, the consequence is that the delicate shoulders of women are weighed down with a heavy bundle of complaints and advice. Against this we protest. It is not courteous, to say the least, and besides, the assumption is unsupported. When it comes to a matter of health, the question is not one of sex, but of race; and although it is undoubtedly true that no people can long maintain themselves without healthy fathers.

Have we a healthy man among us? Yes, as individuals, but he is not what is called in current talk, "the average man." This is the land of patent medicines, and the supply is according to the demand.

There are two specific causes for the ill-health of men. In the first place, every man is trying to get on in life. We begin when we are boys. No one is born to a place in society. Every one is told, and feels, that he must make for himself a place. And also, that he may step higher up, he is continually aiming at a star rather than a tree, or often exhausts himself in seeking that which is still beyond him.

In the second place, the pleasures of men often injure them. The young man at college rows himself out of health, while the man of business mistakes excitement for pleasure. There must be something pungent and almost acrid about even the occupations of a day of leisure. There is no time in these days for one to sit in the sun and sing old songs.

Something more is charged upon woman. In her devotion to fashion it is said that she renders herself unfit to become a mother. But how is it with men? Has not indulgence as often ruined the father as fashion the mother?

## Diseases Incident to the Season.

The seasons of spring, summer and autumn very commonly give rise to certain atmospheric influences which tend to the development of malarial diseases. In low and marshy places it generally crops out in the form of chill fever, bilious fever, etc.; and in the more southern portions, congestive and yellow fever; while in more healthy localities, dysentery, pleurisy, acute inflammations, and attacks of indigestion—such as diarrhoea, cholera morbus, etc., will occur.

Where the eliminating organs are active, but the powers of the system only adequate to partially resist this atmospheric poison, it will manifest itself in chronic congestion of the liver, irritation of the bladder, constipation of the bowels, general debility, and neuralgia.

To obviate these effects, the body should be well protected with clothing; great mental or physical fatigue obviated; all excesses avoided; houses should be well ventilated, and fires in the lower portion of the house at least every evening. The sleeping apartments should be up-stairs and dry. In the treatment, active purgatives and all debilitating remedies should be avoided.

**DEATHS FROM DRINK.**—Doctor Edward Jarvis, statistician of the General Life Insurance Company of London, furnishes the following statement, as showing the death of persons who are intemperate as compared with an equal number of persons of temperate habits. He says that if 100,000 intemperate persons be taken from fifteen to seventy years of age, and an equal number of corresponding ages, who are not intemperate, 32 of the former will die as often as ten of the latter. Out of 100,000 of each, 15,907 of the intemperate will be dead before fifty years of age, but of those not intemperate, 4,266 only will be dead. From fifty to sixty years, the comparative number of deaths will be 6,419 and 2,254, and from sixty years to seventy they will be 55,175 and 33,280. Here is an argument *ad rem* which should be much more potent than any prohibitory laws to check the suicidal growth of habits whose fatal results are thus mathematically demonstrated.

Persons of a nervous temperament performing brains work should subsist mainly upon fish and cornmeal.

A TAPE WORM, fifty-two feet long, has been removed from the stomach of a man in Houston County, Texas.

## Glycerine as Food and Medicine.

Glycerine is one of the most valuable articles our pharmacopoeia can boast, while as an article of food, it is one of the best and most fattening nutriment. Sweet oil, or olive oil, has for ages been an article of daily diet in Palestine and other old countries, and glycerine is an essence of it. It is a perfectly natural and bland fluid, and the most penetrating, perhaps, in all nature. Oil itself will penetrate where water will not, and glycerine, which may be considered the ethereal part of oil has this property to a most remarkable degree—it penetrates the solid bone.

A medical journal tells us that if poured into a mixture of blood and matter, such as is expectorated from consumptive lungs, it will get between the globules of each and show them with greater distinctness. Being thus penetrating, it is the very best application for feverish sores, for inflamed or dry surfaces, simply from its quality of penetration and evaporability. If applied with a common brush to the surface of the throat in diphtheria, in a few minutes its permeative quality enables it to sink between the molecules of the false membrane, dissolving and detaching it in a few hours. It is the best application known in case of burns.

## Cure For Lead Poisoning.

The last published volume of Chambers' Encyclopedia recommends the following treatment as a sure and speedy cure for lead poisoning. The patient should be placed in a sulphuretted bath, which converts all the lead salts in the skin into the inert black sulphide of lead. These baths should be repeated till they cease to cause any coloration of the skin. At the same time he should drink water acidulated with sulphuric acid or a solution of sulphate of magnesia, with a slight excess of sulphuric acid, by which means an indissoluble sulphate of lead is formed, which is eliminated by the purgative action of the excess of sulphate of magnesia. Iodide of potassium is then administered, which acts by dissolving the lead out of the tissues, and allowing it to be removed by the urine. The palsy may be specially treated, after the elimination of the lead, by electricity, and by strychnine in minute doses. Persons exposed from their occupation to the risks of lead poisoning should be especially attentive to cleanliness, and if they combine the frequent application of the use of sulphuric lemonade, or treacle beer acidulated with sulphuric acid, as a drink, they may escape the effects of a metallic poison.

**TREATMENT FOR FAINTING AND LOSS OF CONSCIOUSNESS.**—Where the mind becomes intensely excited, it is liable to disturb the circulation to such an extent, as to result in loss of consciousness. It is best treated by placing the patient at once on the back with the head slightly elevated and the arms extended; water should be dashed in the face, and the palms of the hands and soles of the feet slapped or rubbed briskly. No more persons should be allowed to gather around than is absolutely necessary for the case; if immediate consciousness is not restored, ice should be applied to the spine, or, in the absence of ice, cold water should be dashed along the spine. Spirits of ammonia may be applied to the nostrils, and brandy or whisky injected into the bowels in extreme cases.

**INTENSE craving for food of improper kinds and at unreasonable hours, can be prevented to a great extent by drinking water.**

THREE persons in one family, the father and a son and daughter, died recently from eating pork containing "trichina," near Casey, Adair Co., Iowa.

CHILDREN of a weak and scrofulous habit should be allowed all the white sugar they desire. It improves digestion and strengthens the blood.

**INSANITY.**—Statistics prove that about one-half the cases of insanity have been occasioned either directly or indirectly by strong drink.

FUEL for domestic purposes became so rare an article during the siege of Paris, that several ingenious devices were invented to meet the positive hardship suffered from its scarcity. One process that met with great favor was to saturate porous cylinders of clay prepared for the purpose with bituminous substances. These were used like the charcoal, which is largely used under ordinary circumstances.



# Scientific Press.

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San Francisco:

Saturday Morning, Sept. 30, 1871

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Sept. 27, 1871.—Legal Tenders buying 88; selling, 88½. Gold in New York to-day, 114½.

## Table of Contents.

Rail and Car Mortising Machine—Ill.; Chloridizing Process for Silver Ores.....	193
MECHANICAL PROGRESS.—Coal Dust for Fuel; Berlin Iron Castings; Water as a Support for Bearings; A Piano Without Strings; Wooden Ships.....	194
SCIENTIFIC PROGRESS.—New Mode of obtaining the Extract of Hops; Distances of Fixed Stars; Testing by Means of the Blow-pipe; Productive Power of Soils; New Application of Charcoal.....	194
A Visit to Treasure Hill; Business and Mining at Belmont, Nev.; Bull Run District; Cotton in California; Niagara Falls.....	195
MINING SUMMARY.—California, Idaho, Montana, Utah, Arizona, Colorado, New Mexico.....	196-7
Market Review; Mining Shareholders' Directory, etc.....	197
A Few Words to Sportsmen; California Horse "Lodi;" Book Notices; Creighton's Pruning Shears—Ill.....	198
USEFUL INFORMATION.—Good Health.....	199
Use of Sulphur in the Stetefeldt Furnace; On the Assay of Gold; Mining in Arizona.....	200
The Comstock Lode; Fluting and Ironing Machine; Patents and Inventions; Carbolic Acid in Rubber Hose.....	201
Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.....	202
Contributions to Our Cabinet; Ladies Among the Scientists.....	204

## Removal.

The entire business office of the SCIENTIFIC PRESS, PACIFIC RURAL PRESS, and our U. S. and Foreign PATENT AGENCY and ENGRAVING establishment, will be removed Oct. 1st to No. 338 Montgomery st., on the southeast corner of California street, diagonally opposite Wells, Fargo & Co.'s.

**NEW MINES IN ARIZONA.**—A party of ten prospectors have lately returned from Arizona, reporting the discovery of rich gold quartz and auriferous diggings among the valleys and in the White mountains. They prospected a section of country in this vicinity about ten miles wide and thirty long, and report plenty of water, and good diggings; but say they were driven away by the Indians. According to their assertions the country abounds in game, and there is plenty of good agricultural land in the White mountain range. Some of the party remained in Loe Angeles and are determined to return if they can get men enough to go with them to keep off the Indians. These miners are old frontiersmen and believe that the mines are excellent.

**TIN IN AUSTRALIA.**—The Sydney morning *Herald* reports the discovery of a large deposit of tin ore, of extreme richness, in the northern district, near Inverell. A bag of it has been received and melted by a rude process with a yield of 70 per cent. with a slight admixture of silver and a trace of gold.

**NASH, MILLER & Co.,** is now the name of the firm manufacturing Nash & Cutts' well-known patent fanning mill and grain separator in Sacramento.

## Use of Sulphur or Brimstone for Silver Ores in the Stetefeldt Furnace.

[Written expressly for the Press.]

In times when the roasting of silver ores was carried on in Freiberg for barrel-amalgamation, most critical investigations were carried on for several years, for the purpose of determining what amount of sulphur should be present in the ore, in order to form as much sulphuric acid as would be necessary to decompose the required quantity of salt, and to obtain the highest percentage of silver profitably. The amount of sulphur, or rather of iron sulphurets necessary, was finally agreed to be not less than twenty-five per cent., equal to 265 pounds of sulphur to the ton of ore. In case the ore has not enough pyrites to supply the above quantity of sulphur, more of the former had to be added. But since iron pyrites could not be obtained everywhere at a moderate price, experiments were instituted for the purpose of finding a suitable substitute, containing sulphur or sulphuric acid. The most economical substance was found to be green vitrol or sulphate of iron, of which 50 pounds were required to the ton of ore after 41.79 per cent. of water was driven out by previous calcination. These 50 pounds contained 26½ pounds of sulphuric acid.

It was found that the direct application of sulphur or brimstone did not answer in reverberatory roasting furnaces. When mixed with the ore before charging, the sulphur burned off at a temperature, too low to form sulphates, and this is the first and indispensable condition with reverberatory furnaces treating silver ores. This time and fuel consuming condition, does not exist with the Stetefeldt furnace, owing to the peculiar way of bringing the ore particles in contact with heat and gases, as mentioned in my edition on "roasting gold and silver ores" p. 64. It is stated there, that the sulphurous acid, emanating from sulphurets (or any other source) in contact with ore particles and oxygen, becomes sulphuric acid, acting directly on the salt. It is of course not immaterial, whether this sulphurous acid is created in or outside the furnace, for it seems to be more advantageous to produce this gas outside, if introduced into the furnace below the fire-places, it being thus completely utilized in rising up through the descending shower of glowing ore.

What a waste of sulphur occurs in common reverberatory furnaces, can be seen from the high amount of 265 lbs. which was found necessary to perform the chlorination in a ton of ore. It certainly must be admitted, that little attention is paid here as to the amount of sulphur, especially with the Stetefeldt furnace, wherein, under like circumstances, more chlorine is produced than in common furnaces, and the above proportion of sulphur should be looked upon as a local standard for the Freiberg ore principally. In Hungary for instance, black copper (from smelting) containing from \$140 to \$150 per ton is treated with 7 to 9 per cent. of salt where there is no sulphur at all in the mass, and no sulphur-containing substance is added. On the other hand, argentiferous arsenical pyrites, bare of sulphur, cannot be chloridized in roasting without the addition of sulphate of iron. These facts show, that in some instances chlorine can be obtained from salt without the action of sulphuric acid, depending on substances and circumstances not yet sufficiently known, and for this reason the presence of sulphur under ordinary circumstances, must be considered a necessary part of silver ore.

The Stetefeldt furnace admits of the most convenient and most economical application of brimstone. This chemical is by far the cheapest, (about four ounces per pound) containing the highest amount of sulphur, and the perfect consumption of it in the furnace allows the use of a small percentage. It is important with ores that are generally termed "carbonates and chlorides," the latter sometimes containing either only a small percentage of chloride of silver or none at all. Also for Stetefeldtite and similar ore. Ore having no other sulphurets but a small amount of sulphurets of lead (galena,) yields very little sulphur as the greatest part turns into sulphate of lead and remains so.

In using brimstone I found that a certain class of ore, called "chloride ore" could not be chloridized higher than 70 to 72 per cent., but applying one-half of one per cent. of brimstone, brought it up to 85½. Treating ore that contained galena, 7 per cent. of chloride of silver more was obtained with the aid of brimstone.

As to the mode of administering the sul-

phur, it may be that by crushing the ore and brimstone together, it would give the same result as to introduce it below the fire-place, but there are many obstacles in the way, and after all, it seems that the advantage is in favor of the introduction of sulphurous gas below the fire-place. No sulphurous acid reaches the top of the furnaces and an abundant and agreeable smell of chlorine is perceptible, as soon as the sulphur gas enters the furnace. An easy way to supply the brimstone for temporary use is in front of the discharge door, inside the furnace. It can be placed on a fire-brick or stone, hollowed so as to receive one or two pounds of sulphur, but an outside vessel, a 50 lb. black lead crucible, for instance, with a pipe attached, leading the gas of the burning brimstone into the furnace, is preferable.

G. KUSTEL.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

Before attempting to make a gold bullion assay, the following sources of error should be known:—

Those errors which may result from the non-adjustment of the balance and weights.

If the balance is sufficiently delicate, most of the errors may be disregarded if the weights are always placed in the same pan; and all of them by counterpoising. What is meant by this term may be best explained by an example.

Let it be assumed that the weights are in perfect adjustment, that is to say, each must be exactly what it purports to be, the 0.1 must be accurately one-tenth of the unit, etc., throughout the whole set. They must agree properly among themselves.

Suppose you wish to weigh out one gramme of any substance, by counterpoising. Place a gramme weight in the right hand pan of the balance. Place other weights in the opposite pan, until the index settles nearly at zero, then with a small rider slipped along the beam, so regulate the counterpoise that the index points to zero exactly. Then remove the gramme weight and replace with the substance until the index occupies the same central position as at first. The operation may be reversed when you wish to ascertain the unknown weight of any substance. A moment's thought will make the reason of this operation apparent.

Such weighing will do in extreme cases, but no assayer should be without a first-class balance.

Any convenient unit divided into 1,000 parts may be used in the bullion assay. For gold assays the unit is usually ½ gramme so divided, while for silver, being less valuable, one gramme is used. It is not safe to trust the weights of any maker no matter how celebrated he may be, but it is best for the assayer to test their accuracy for himself.

Another source of error is a slight loss gold on the cupel. This error may be corrected by cupelling a proof in the muffle at the same time with the assay. The proof is pure gold and silver as near the composition of the assay as can be made. The loss of the proof is supposed to be equal to that of the assay and is to be added to its weight. The details of conducting this check assay will be given in its proper place.

A third error may result from using an impure acid. A loss of gold may be sustained from its solubility in nitric acid containing chlorine. This error may be avoided by always having a little silver dissolved in the acid. It is too expensive and wholly unnecessary to employ chemically pure acid in the gold assay. Good commercial nitric acid treated in the manner to be described will answer every purpose. Acid of two grades of strength must be prepared from the strong acid, one of 20° Baumé and one of 30°. It is best to dilute all the acid to 30° with distilled water and add a few drops of a solution of nitrate of silver. Let it remain 24 hours to settle and add a few more drops of the silver solution; if no cloudiness appears silver enough has been added. The acid is allowed to stand covered for a week and the clear portion is decanted off from the slight precipitate of chloride of silver—one-third of the acid is then diluted with distilled water to 20°. The process of diluting is easily performed by the aid of a hydrometer. A portion of the acid is poured into a cylinder deep enough to float the hydrometer, which will sink to a

certain point according to the density of the acid. The strength in degrees, can be read on a scale on the inside of the stem of the hydrometer.

Every assayer should possess a hydrometer and cylinder and dilute his acid himself. The acid so prepared should be distinctly labeled and the fact of its containing silver noted. It should be used for no other purpose.

Still another error to be guarded against is the *surcharge*, which is the small amount of silver which always remains in the cornet, no matter how carefully the manipulations may be conducted. There are several tables computed to correct this. The finer the gold the greater will be the surcharge.

The following results were obtained by a series of careful experiments in the Paris mint, by weighing out accurately gold and silver both absolutely pure to represent the fineness written in the first column. The results in the second column show the surcharge when they are greater than the fineness, and the loss on the cupel when they are less:

900 .....	900.25
800 .....	800.5
700 .....	700.
600 .....	600.
500 .....	499.5
400 .....	399.5
300 .....	299.5
200 .....	199.5
100 .....	99.5

Pure gold for proofs may be obtained by dissolving gold in *aqua regia* (one part nitric acid and two of muriatic,) evaporating nearly to dryness in a water bath, dissolving in distilled water and precipitating with solution of proto-sulphate of iron. The black precipitate, which is the gold, is washed, dried and melted. It is best to let the solution stand for a week to allow chloride of silver to fall, before precipitating with the proto-sulphate of iron. After melting the gold, it should be rolled out thin, cleaned from oil, cut into shreds and kept in a clean bottle for use.

A typographical error was made in the last article, in describing the manner of obtaining clippings from the bar, the word grain was printed instead of gramme, which was intended.

The method of conducting the assay is as follows: The assayer seats himself before the balance, having the clippings in a convenient position inside the case. Half a gramme weight is placed in the right hand pan of the balance and portions of the clippings in the other until nearly correct, but the gold should be the heaviest. The largest piece is then removed by the aid of a pair of pliers, and touched against a clean file by which a minute portion is removed. By careful manipulation nearly the exact point will soon be obtained, but with the greatest care; if the balance is delicate, it will be found nearly impossible to adjust the weight so perfectly that the index will not point either one side or the other of the zero. It will be necessary to make a memorandum of the error and mark it with the number of the assay and in weighing the cornet to take the same reading of the index.

The gold is removed from the balance-pan and carefully folded in a piece of lead-foil an inch square. Care must be taken in preparing this lead, that it is as pure as possible. It must contain no trace of gold. Its purity being established, it is easily prepared by rolling out to a uniform thickness and cutting into inch squares. These should always be prepared by the assayer himself, and kept on hand in sufficient quantities. If not convenient to prepare it, it should at least be assayed before use. Two assays must be prepared as described above.

Two small well-made cupels are then to be placed in the muffle, and when hot, a piece of pure lead weighing three grammes is placed in each, it will soon melt and begin to "drive"—that is, begin to be absorbed by the cupel—the assays are then to be added, when perfectly melted the cupels are to be drawn forward to that point in the muffle, which experience has shown to the assayer that cupellation progresses most successfully. When the cupellation is finished and the buttons have assumed a brilliant, yellow, metallic lustre, they are removed, hammered slightly on either edge on a clean anvil and examined carefully with a magnifying glass, to see that all bone ash has been removed.

The two buttons should weigh exactly alike. If this should not be the case, the heaviest one must be examined carefully to see if any particle of bone ash may have been overlooked. If this should fail, there is no resource but to make another assay, which should agree with one of the first. The correct weight of one of the buttons represents the total fineness, or the pure gold and silver in the bar expressed in thousandths.



## THE COMSTOCK LODE.

Perhaps no vein in the world has been written about to so great an extent or excited so general interest in the scientific, as well as the practical world, as the Comstock lode. Yielding immense amounts of bullion (an average of \$11,000,000 per annum for ten years) giving rise to the most gigantic stock speculations; forming a connected group of fissures of a simple general structure but extraordinarily complex in detail, explored to a depth of over 1,200 feet, traced to a length of some four miles and developed to a length of about one-half this last named distance, calling for now processes of treatment for its ores, suffering a waste of its precious contents sufficient to enrich cities, and even the subject of legislative investigation,—it presents to the stock broker, the geologist, the metallurgist, to all who are in any way connected with mining matters, a history of unparalleled interest.

The literature of the Comstock lode, already very voluminous, has been lately enriched through the labors of the U. S. Geological Exploration of the 40th Parallel, which has published one of the five promised volumes, wisely giving out first that on Mining Industry. We referred to this sometime ago, but certain changes in this office have prevented our since recurring to the matter. It is our intention, however, to speak further on the subject, and at the present time we propose condensing from Mr. King's and Mr. Hague's most excellent chapters on the vein whose title heads this article. Mr. King has written at length and boldly on the geology and structure of the lode, and Mr. J. D. Hague contributes most carefully studied articles on the processes of extracting and reducing the ores. Our condensation will treat only of certain points given by the Survey, and here give a brief account of Mr. King's chapters.

## Structure of the Lode.

The lode is bounded by two walls, running north and south, which, inclining together, the western at an angle of 45° to the east, the eastern being steeper, form a V-like section. This wedge is some 20,000 feet long, 200 to 800 feet wide at the surface, and 800 to 1,200 feet deep. Throughout the greater part of the lode, below the junction of the two walls, explorations show no vein; but at the Hale & Norcross and in the Gold Hill group, the contact does not occur, the east wall curving in to parallelism with the west. The great ore channel is along the eastern fissure.

The space between the two walls is occupied principally by a wedge-like mass of propylite (syenite also occurs), penetrated by numberless seams of quartz and clay. Along the west wall, separating the vein from the country rock, occur relics of a dike of andesite,—the starting point of the lode. Grouped in the sheets of quartz occupying the eastern fissure are the silver ore bodies. In the eastern wall are certain general curves to the east, which are connected at the extremities with the west wall, probably the separate outlets of the general solfatara which is supposed to have formed the vein. The Gold Hill group of mines occupies one of these chimneys, the Bullion and part of the Chollar-Potosi another, the Virginia Group a third, and the Consolidated and Ophir a fourth. Of the country north of the Ophir but scanty information has been acquired.

Throughout Gold Hill the vein in depth becomes a simple, single mass of vein material, and there are no grounds for predicting its giving out. In the Virginia section the eastern crevice terminates against the western wall and the vein is wanting for several hundred feet below, at least; only in the central point, occupied by the Savage and Hale & Norcross, there would seem to be a deep-seated chimney. In the northern regions explorations are not far enough down to give data for a well-grounded opinion as to the nature of the fissure in depth; it is considered quite possible, however, that the Ophir Consolidated chamber may terminate downward in a deep chimney.

## How the Lode was Formed.

In the late Tertiary occurred a volcanic outflow of propylite or trachytic greenstone,

which deluged the Virginia Range from summit to base. Subsequently an outflow of andesite gave the starting point of the lode, causing the western inclined fissure, and also the eastern, which is simply a gash from the surface. This period gave birth to the solfatara which decomposed the surrounding rocks and gradually filled the fissures of the lode with their remarkable charges of quartz, in which, while still plastic, most of the minerals were deposited. It is probable, from the disposition of the bonanzas, that the quartz was injected from below through two or three narrow chimneys; and that it was deposited in a uniform mass, the parallel arrangement being given afterwards by the combined chemical and dynamical action to which it was exposed. A second unimportant, and a third, deposition of quartz, occurred, before which last the percolating of waters, attrition and decomposition produced the sheets of clay.

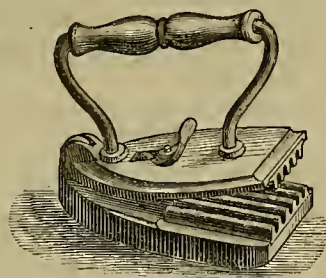
Not 25 per cent. of the actual face of the lode has been occupied by argentiferous bodies, and, indeed, not more than 1-500th of the lode material has been charged with silver to a workable amount. It is interesting to observe that all the traceable lines of motion, either in the fluting of the east wall or the striation upon clay surfaces, or the second deposit of quartz, indicate a northerly movement. The bonanzas rise and spread out in fan-like forms, being richest towards the north, and again predicated that the most powerful currents (as was also the case with all the greater dynamical effects) were in that direction.

The above statements, from the brevity necessary in the columns of a weekly journal, do scant justice to Mr. King's elaborate articles, which are characterized by boldness and strong arguments. They were written over a year ago; but, as far as we know, subsequent explorations have, if anything, confirmed any statements made therein.

As to the continuance of the lode in depth, the article would be rather discouraging to some of the mines, while to others there would be no reasons for the cessation of ore, which might logically be expected at greater depths, if the immense masses of quartz have been injected from below, as would seem to be beyond doubt.

## Patent Fluting and Ironing Machine.

This little instrument is intended to answer two purposes, that of a polishing and a fluting machine. It is made of good material and highly polished; the fluting



apparatus made of brass is also well-finished. The construction and manner of using may be seen at a glance by referring to our illustration. A hinge at the point serves to connect the handle and bottom, where it is necessary to use for fluting, and when used for ironing it is closed and held in its place by a key, or catch, placed on top. When the iron is ready for use of course the fluter is also warm enough so only one heating is necessary. The machine flutes collars, cuffs and ruffles of every description, without injuring the fabric and with very little trouble. It is not intended for laundries or places where a large amount of fluting is done, but for family use where a machine of this kind would be likely to be a convenience in "doing up" laces, collars, etc. Weister & Co. are the general agents for this iron on the coast, and further information as to cost, etc., may be had by addressing them at No. 17 New Montgomery street.

Boston Common has produced three crops of hay this season.

## CARBOLIC ACID IN RUBBER HOSE.

At the large fire on Market street, last week, when the supply of hose was found to be inadequate to the wants of the firemen, Mr. J. W. Taylor, agent for the patent carbolized hose, promptly offered the use of 1,000 feet to the Department, which offer was accepted. It was found to stand the pressure admirably, without sweating, and was really of great use to the firemen. This, and the recent severe tests of this hose at Marysville, have served to bring it before the public on this coast; and the Board of Fire Underwriters recommending its adoption by the Fire Department, to the Board of Supervisors of this city, that body have ordered the purchase of 5,000 feet. The principal objections urged against the old leather hose are, its inability to stand pressure, and the fact of its "sweating." The carbolized hose is free from the latter defect; and, as an instance of its strength, 2,000 feet sustained, at the Marysville trial, a water pressure of 370 pounds to the square inch, without showing any flaw or weak point.

The great value of carbolized acid in the arts, says the *Engineering and Mining Journal*, is but just beginning to be fully appreciated. Its cheapness and abundance have rendered it a favorite disinfectant, deodorizer and antiseptic. How it acts in producing these effects is not clearly explained; but of its efficacy there is no doubt; and the new application of it to which we desire to call attention, is but another illustration of its already recognized properties. The liability of the old-fashioned leather hose to leak under pressure was troublesome enough, even in the days of volunteer departments and hand engines. But with the introduction of steam fire engines, which enormously increase both the volume of water thrown and the pressure per square inch on the hose, the leather hose, with their clumsy riveted seams, have become well nigh useless. Moreover, aside from actual bursting, there is a forcing of the water into the pores of the leather. It is almost impossible to dry the hose thus soaked; and the very process of wetting and drying, when applied to leather, soon destroys the strength of the material. In cold weather the wet hose freezes; and this not only causes great inconvenience in handling, but also, by the expansion of water in the pores, injures the texture. These evils, discovered in practice, have led to the substitution of rubber hose for leather. The rubber hose, as our readers are aware, is made of alternate layers of vulcanized rubber and cloth. As it is seamless and less permeable to water than leather, it is much superior to hose of the old style; and the number of large establishments now engaged in its manufacture indicates that this acknowledged superiority has become the basis of an extensive and flourishing industry. But a few years of actual use have considerably abated the enthusiasm with which the rubber hose was at first received. It is found that this material is not perfectly impermeable. Under the enormous pressure now common, it will sweat; water will penetrate the pores; and both from this cause and from atmospheric agencies and changes of temperature, the cloth will be afflicted by mildew, dry and wet rot, and the rubber itself, in the course of time, will become deteriorated or decomposed. It is at this point that the application of carbolized acid has been so remarkably efficacious. The exact nature of the processes involved in the decomposition of rubber hose is not understood; neither, as we have already remarked, is the action of carbolized acid thoroughly comprehended; but the mysterious remedy is certainly found to cure the inexplicable disease. In truth, this is the sum total of almost all cures; and if it suffices for doctors, why should it not, for the time being, satisfy firemen? Where Esculapius is at fault, surely Mose need not be overcurious! We recently examined a piece of stout canvas, which had been dipped in carbolized acid and water, and subsequently exposed to mildew. The carbolized acid being insoluble in water, and the process of soaking having been left purposely incomplete, the cloth was spotted—the darker places indicating where the acid had taken effect, and the lighter ones where the cloth had been merely wet with water only. The difference in condition was startling. A thread unravelled from a light spot was so rotten as to fall apart in the fingers, while the other end of the same thread, which indicated by its color the presence of the acid, could not be broken by main strength. Not less decisive is the effect of this agent upon the rubber itself, though this, of course, can only become evident after a considerable time. It then appears that when ordinary vulcanized rubber has become useless, the carbolized material seems to have suffered no change whatever. Possibly a part of this effect is mechanical, and due to the complete permeation of the mass by an insoluble substance; but this hypothesis is insufficient to explain the extraordinary durability of the result. The Metropolitan Fire Department now uses, exclusively, hose of this description, made by the Gutta Percha and Rubber Manufacturing Company, which has a patent for the chemical preparation. We observe that the circulars of this company do not say what is the nature of the chemicals employed. It can, however, do the patent no harm to betray, as we have done, the interesting fact that this remarkable result has been obtained by the

use of the agent we have named. It occurs to us that hose of this description would be a great boon to the hydraulic miner. It is not uncommon to find in the great hydraulic claims, hose under a head of one, or even two hundred feet of water, corresponding with a pressure of from forty-five to ninety pounds per inch, to say nothing of the momentum, or the enormous strain near the nozzle. Moreover, a leakage or bursting of the hose is more than a mere inconvenience to the miner. It is money running to waste. Every inch of water is paid for, and every inch should do its work. But our hydraulic miners are too often men who trade with the local dealers only; and few would be so enterprising as to send all the way to New York, just to get a hose that will last longer and wear better than any other. To supply this deficiency, the company have established an agency at 109 California street, in this city, under the charge of J. W. Taylor, who will furnish any desired information on the subject, and also show the article in question, of which he has a plentiful supply.

## PATENTS &amp; INVENTIONS.

## Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

## FOR THE WEEK ENDING SEPT. 19.

DRIVING-WHEEL OF LOCOMOTIVE ENGINES. Almond F. Cooper, San Francisco, Cal.

NOZZLE FOR OIL-CANS.—Sharron P. Doane, San Francisco, Cal.

WASHING MACHINE.—Henry Elford Lea, Half-Moon Bay, Cal.

BUNG AND BUNG-INSERTER.—Daniel Boone Rickey, San Francisco, Cal.

TRACTION-ENGINE.—Melvin A. Halstead, San Francisco, Cal.

## REISSUE.

FURNACE FOR SOLDERING.—Lewis Cutting, San Francisco, Cal., assignor to Francis Cutting, same place. Patent No. 71,141, dated November 19, 1867.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

THE CORNISH ENGINES.—Mr. Lean, "Engineering reporter," at a late meeting of Cornwell mine managers remarked substantially as follows:—"My duty is chiefly to report facts and figures, and I am very sorry that my figures bring out some facts which are detrimental to Cornish mining, at this time. The performance of Cornish engines has fallen off from 20 to 25 per cent, compared with what it was a few years ago. This is no doubt partly attributable to the machinery getting older, and the pipes becoming corroded; but I also feel assured that a large part of the falling off is due to the inferior quality of coals supplied to the mines." Mr. L. gave it as his opinion that the county of Cornwall, was losing from \$100,000 to \$120,000 per annum from the inferior quality of coal supplied to the mines.

LACK OF WATER.—The unusually dry summer that we have had this year has been a serious drawback to mining operations in the State, and there is a general complaint of a want of water. Both water and steam mills are idle in many places, and all that can be done is to get out rock and wait for rain. The gravel deposits require so much water to work them that many have been abandoned, temporarily. If, however, the prognostications of a wet winter prove true, the miners will go to work with redoubled energy, and California will show that her resources in this respect are not yet exhausted.

TEA AND WOOL SHIPMENT.—Fourteen car loads of tea, 418 bales of wool, and 12 car loads of cattle were sent East from this port in a single day by the Central Pacific Railroad.

NEW STYLE OF SULKY.—Mr. John A. Bilz, of Pleasanton, Cal., has an improved method of constructing sulkies, which is said to make his vehicles very popular.

It is said that hickory trees are dying all through Iowa, from some unknown cause.



## DOMESTIC ECONOMY.

### Professor Blot on Coffee Making.

Grind the coffee, rather fine than otherwise. I think it is usually ground too coarse. I use a coffee pot with a filter. You can get them at any tin store. Mixed coffee is best. I prefer mixture of Java, Mocha and Marseilles. Soft or spring water is best. Proportions, one quart of water to three ounces of coffee. Of course, it can be made stronger or weaker. Four teaspoonfuls make a quart of very good coffee for breakfast, but too strong for children.

In selecting a filter, or "coffee highin," choose one with a bottom of silvered gauze, instead of perforated tin, as the perforated bottom lets the finely ground coffee through. Good coffee cannot be made in what is wrongly called a coffee pot, which has no filter, and is much like a tea pot. Such a utensil requires the coffee to be boiled, which ruins it, leaving a bitter taste, and sends all the aroma to the attic.

When the water is boiling hot, put the coffee in the filter, and pour the water over it, and the coffee is made. If the water does not pass through fast enough, set the kettle on the fire again until the water in it boils, when pour it on again. If all the strength is not extracted at the first making, repeat the operation when needed. The coffee may be dark, even black, when strong, but it must be clear. Each kind of coffee must be roasted separately, and it is better to roast it a day or two before using.

**TO PRESERVE BREAD A LONG TIME.**—Circumstances sometimes occur when it is desirable to keep bread for a long time. It may be done in the following manner:—Cut the bread into thick slices, and bake it in an oven, so as to render it perfectly dry. In this condition it will keep good for any length of time required, and without turning mouldy or sour, like ordinary bread. The bread thus prepared must, however, be carefully preserved from pressure; otherwise, owing to its brittleness, it will soon fall to pieces. When required for use, it will only be necessary to dip the bread for an instant into warm water, and then hold it before the fire till dry, then butter it, when it will taste like toast. This is a useful way of preserving bread for voyages and also any bread that may be too stale to be eaten in the usual way.

**PRESERVED PEARS.**—Select large, juicy pears, wholly ripe, and pare them thin, leaving the stems on, but cutting out the black top at the blossom end of the fruit. Lay them in a pan of cold water, after paring. Then simmer the pears in this, half an hour. Then put them in a tureen, covering them with syrup, for two days. At the expiration of this interval, drain the syrup from the pears, and add a pound of sugar to each pint of the thin syrup. Stir in a very little beaten white of egg—say one white to three pounds of sugar—add some fresh lemon peel, grated, and set the syrup over a brisk fire, boiling it for ten minutes, and skimming well. Add lemon juice to flavor it, and put in the pears. Simmer them in this strong syrup until they are transparent. Take them out, spread them to cool, and put them into jars. Keep the syrup warm while the fruit is cooling, and pour it over them.

**CRACKED WHEAT.**—For a pint of the cracked grain, have two quarts of water boiling in a smooth iron pot, over a quick fire; stir in the wheat slowly; boil fast, and stir constantly for the first half hour of cooking, or until it begins to thicken and "pop up," then lift from the quick fire, and place the pot where the wheat will cook slowly for an hour longer. Keep it covered closely, stir now and then, and be careful not to let it burn at the bottom.

Wheat cooked thus, is much sweeter and richer than when left to soak and simmer for hours, as many think necessary. White wheat cooks the easiest. When ready to dish out, have your molds moistened with cold water, cover lightly, and set in a cool place. A handful of raisins added with the wheat is nice. Eat warm or cold, with milk and sugar.—*Herald of Health.*

**TO PRESERVE CLOTHES PINS.**—They should be boiled a few moments and quickly dried, once or twice a month, when they become more flexible and durable. Clothes lines will last longer and keep in better order for wash-day service, if occasionally treated in the same way.

**A TURKISH BREAKFAST.**—A Turkish breakfast comprises about thirty dishes. Soon after the first dish comes lamb, roasted on the spit, which must never be wanted at any Turkish banquet. Then follow dishes of solid and liquid, sour and sweet, in the order of which a certain kind of recurring change is observed, to keep the appetite alive. The pilau of boiled rice is always the concluding dish. The externals to such a feast as this are: A great round plate of metal, with a plain edge, of three feet in diameter, is placed on a low frame, and serves as a table, about which five or six people can repose on rugs. The left hand must remain invisible; it would be improper to expose it while eating. The right hand is alone permitted to be active. There are no plates, knives, or forks. The table is decked with dishes, deep and shallow, covered and uncovered; these are continually being changed, so that little can be eaten from them. Some remain longer—as roast meat, cold milks and gerkins—and are often resorted to. Before and after dinner they wash their hands. An attendant or slave kneels, with a metal basin in one hand and a piece of soap on a little saucer in the other. Water is poured by him over the hands of the washer from a metal jug; over one of his arm hangs an elegantly embroidered napkin drying the hands upon.

**THE ART OF PRESERVING LIVING FLOWERS.**—We gave something on the above some weeks since; but should suppose the following might be probable:—Heat fine white quartz-sand in an iron pot, and stir in some stearic acid and spermaceti, in proportions of half-ounce each, to every five pounds of sand. Taken from the fire, the whole is well mixed, and used as follows: A small box, with a drawer lid, with the bottom knocked out, is inverted, and a coarse piece of wire gauze placed inside, over the lid, which now forms the bottom. This sieve is then covered with a layer of the prepared sand. The flowers, promptly trimmed, are then placed on this sand, and completely embedded in more of it, to keep them in position. The box, covered with paper, is then placed in a room or oven, in which a temperature of one hundred to one hundred and ten degrees Fahrenheit is kept up, in which they will soon be dried. When this point is reached, the lid of the box is drawn, which causes the sand to fall out, leaving the dried flowers on the gauze.—*Bright Side.*

**AN EXCELLENT ECONOMICAL PUDDING.**—Pare and core half a dozen easily cooked apples, chop them into small bits; dry some bread in the oven—stale is the best—till it is crisp, then roll it into crumbs; butter a deep dish and place in it a layer of crumbs; then put in the apples, with a little sugar, and such spices as you like, cover the apples with another layer of crumbs, and so on, adding a little beef suet, chopped as finely as possible; pour in half a pint of milk; bake till nicely browned, and serve with hard sauce. Having many times made this pudding in our own family, we can speak advisedly of its excellence.—*Germanistown Telegraph.*

**KEEP THE KITCHEN AIR PURE.**—A little sink near a kitchen door-step, inadvertently formed, has been known, although not exceeding in its dimensions a single square foot, to spread sickness through a whole household. Hence, everything of the kind should be studiously obviated, so that there should be no spot about a farmhouse which can receive and hold standing water, whether it be the pure rain from the sky, the contents of a wash-basin, the slop-bowl, or the water-pail.—*Home and Health.*

**TO CLEAN SILVER.**—Wash in hot soap suds (use the silver soap if convenient); then clean with a paste of whiting and whiskey. Polish with buckskin, or clean with camphene. If silver was always washed in hot suds, rinsed well, and wiped dry, it would seldom need anything else.

**NEVER rub soap on flannel.** Make a suds by dissolving the soap in warm water. Rinse in warm water; very cold or hot water will shrink flannel. Shake them out several minutes before hanging to dry. Blankets can be washed in the same way.

**A VERY quick drying paint** may be prepared with half a quart of boiled oil, one gill, gold size, and dry color half a pound. This will dry in about an hour.

**MONOGRAM DOUGHNUTS** are the latest novelty among the F. F.'s. of Ohio.

### Domestic Receipts.

**HOME MADE SODA.**—Dissolve five ounces of tartaric acid, in four quarts of boiling water, to which add six pounds of white sugar, the whites of six eggs well beaten to a froth, and two tablespoonfuls of lemon, pineapple, vanilla, ginger, or any flavoring extract one chooses. Boil all together in a porcelain kettle for ten minutes, or until the sugar is dissolved. Just before taking from the fire, add the whites of the eggs, stirring in while you count 300 slowly. Strain, add the essence when taken from the fire, and bottle tightly. When desired for a drink, measure two tablespoonfuls of it into half a teaspoonful of baking soda or saleratus, and you will have a very good substitute for a glass of soda water, which will both cool and refresh you.

To whiten straw hats, scrape stick sulphur with a knife, mix the powder to a mush with water, plaster it thickly over the straw, and place in hot water several hours; brush off when dry. An easy and effectual plan.

To cleanse the inside of jars, fill them with hot water and stir in a spoonful or more of pearlsh; empty them in an hour, and if not perfectly clean, fill again and let them stand a few hours. For large vessels lye may be used.

For fruit stains on napkins, table cloths, etc., pour hot water on the spots—rub in hartshorn or oxalic acid, dissolved in water.

**TO RENDER FABRICS UNINFLAMMABLE.**—A good preparation for this purpose is a mixture of horax and sulphate of magnesia, or a mixture of sulphate of ammonia and sulphate of lime.

### Mechanical Hints.

**GREEN VARNISH.**—There is a most beautiful transparent green varnish, employed to give a fine glittering color to gilt or other decorated works. As the preparation of this varnish is very little known, an account of it may in all probability prove of interest to many of our readers. The process is as follows:—Grind a small quantity of a peculiar pigment, called "Chinese blue," along with about double the quantity of finely-powdered chromate of potash, and a sufficient quantity of copal varnish thinned with turpentine. The mixture requires the most elaborate grinding or incorporating of its ingredients, otherwise it will not be transparent, and therefore useless for the purpose for which it is intended. The "tone" of the color may be varied by an alteration in the proportion of the ingredients:—A preponderance of the chromate of potash causes a yellowish shade in the green, as might have been expected, and *vice versa* with the blue under the same circumstances. The colored varnish will produce a very striking effect in japanned goods, paper-hangings, etc., and can be made at very cheap rate.—*Cabinet-maker.*

**TO RESTORE FURNITURE.**—An old cabinet maker says the best preparation for cleaning picture frames and restoring furniture, especially that somewhat marred or scratched, is a mixture of three parts of linseed oil and one part spirits of turpentine. It not only covers the disfigured surface, but restores wood to its original color, and leaves a lustre upon the surface. Put on with a woolen cloth, and when dry, rub with woolen.

**PAINTING PAISLS.**—In painting the inside of wooden pails, no lead pigment should be used (as serious cases of poisoning have resulted from the contamination of the water by such pigments) but either whiting or gypsum, if a white color is insisted upon, or ochre, if the best material is desired, without regard to color.

**GUM TRAGACANTH MUCILAGE** can be prepared much more quickly and of a more uniform consistency, by first rubbing up the powdered gum with a little glycerine before the water is added; as in this way the formation of lumps is entirely avoided.

**FOR GLAZING LINEN.**—A compound may be made by adding to a pint of starch one teaspoonful each of salt and finely-scraped white soap, is recommended for the glazing of linen.

**ASHBERRYUM,** a substitute for Britannia metal, invented by Ashberry, of Manchester, consists of 80 parts tin, 14 of antimony, 2 of copper, 2 of nickel, one of aluminum, and one of zinc.

**TO PREVENT LAMPS FROM SMOKING.**—Lay the lamp-wicks in vinegar for an hour, and dry them well before they are used.

## LIFE THOUGHTS.

KIND feelings are benefits as much as kind deeds.

A MAN's actions, not his opinions, render him valuable.

BETTER he understood by ten than admired by ten thousand.

MANY a professing Christian has Jacob's voice, but Esau's hand.

He who reforms himself has done much toward reforming others.

THIS is the method of genius, to ripen fruit for the crowd by those rays of whose heat they complain.

THE higher you rise, the higher is your horizon; so, the more you know, the more you will see to be known.

He is happier who has little, and with that little is content, than he who has much, with impatience for more.

The first ingredient in conversation is truth, the next, good sense, the third, good humor, and the fourth, wit.

MANY men have the materials of happiness placed within their reach, but not one in ten knows how to manufacture anything out of them, except ennui.

A WEAK mind sinks under prosperity as well as adversity. A strong and deep mind has two highest tides—when the moon is at the full, and when there is no moon.

As there are none so weak that we may venture to injure them with impunity, so there are none so slow that they may not sometime be able to repay an obligation.

THE doors of fictitious pleasures are often closed and barred against us, that we may be forced to seek the approaches to real substantial happiness.

### Economical Habits.

With certain limitation it is true that a man who cannot save a margin from a small income, will never save anything from a large one. Wants are always more plentiful than dollars. The habit of self-denial is rather more easily cultivated when the means for supplying them are limited, then when more ample means have created new tastes and desires. Therefore, if you would grow rich, you must begin to save when you begin to acquire. A single dollar saved is often a larger proportion of actual necessities; than the thousands your rich neighbor places in the bank. Early savings have the longest time to grow. A dollar saved at twenty, will count as much as sixteen saved at sixty. Many young men spend in cigars alone, between the ages of fifteen and twenty-five, sums of money, which, if properly invested, would accumulate to an amount, by the time they reach fifty years of age, ample to meet the necessities of age, and to render them independent for the remainder of their lives.

**THE BEST HAVE THEIR FAILINGS.**—A painter was once engaged upon a likeness of Alexander the Great. In one of his great battles Alexander had received an ugly scar on the side of his face. The artist was desirous of giving a correct likeness of the monarch, and, at the same time, desirous of hiding the scar. It was a difficult task to accomplish. At length he hit upon a happy expedient. He painted him in a reflective attitude, his hand placed against his head, while his finger covered the scar. The best men are not without their failings—their scars—but do not dwell upon them. In speaking of them to others, adopt the painter's expedient, and let the finger of love be placed on the scar.

**FORTUNE.**—"I am old enough," says Smollet, in a letter to his friend Garrick, "to have seen and observed that we are all playthings of fortune; and that it often depends upon something as insignificant and precarious as the tossing up of a half-penny, whether a man rises to affluence and honors or continues to his dying day struggling with the difficulties and disgraces of life.

**COMPENSATION.**—If thou hast wronged thy brother in thought, reconcile thee to him in thought. If thou hast offended him in words, let thy reconciliation be in words. If thou hast trespassed against him in deeds, by deeds be reconciled to him. That reconciliation is most kindly which is most in kind.

**WORK** with a zeal and a purpose. Let the soul go forth in a full tide of love to all mankind, counting all men as brothers whom God appoints to walk in and about our paths.



## Business Cards.

**JOHN ROACH, Optician,**  
Has removed from 522 Montgomery street to  
540 Washington street,  
East of Montgomery.  
Surveying Instruments made, repaired and adjusted  
25v17-3m

**E. J. FRASER, M. D.,**  
SURGEON,  
No. 102 Stockton Street, San Francisco, Cal.

**Farmers and Mechanics  
BANK OF SAVINGS,**  
No. 235 Sansome Street.  
Interest paid on Deposits. Money Loaned on Real Estate.  
**H. DUTTON, President.**  
GEO. M. CONDEE Cashier. 19v16-3m

**BARTLING & KIMBALL,  
BOOK BINDERS,**  
Paper Rulers and Blank Book Manufacturers.  
605 Clay street, (southwest cor. Sansome),  
15v12-3m SAN FRANCISCO.

**SAN FRANCISCO  
CORDAGE COMPANY.**  
Manila Rope of all sizes. Also, Ballo Rope and Whale  
Line constantly on hand. Mining Ropes of any size  
and length manufactured to order.  
**TUBBS & CO., Agents,**  
611 and 613 Front street.

**SAN FRANCISCO MILL.**  
**HOBBS, GILMORE & CO.,**  
Manufacturers of Boxes,  
Market Street, bet. Beale and Main.  
For sale—Mahogany, Spanish Cedar, and other Woods.

**JOSEPH GILLOTT'S  
STEEL PENS.**  
Sold by all Dealers throughout the World.

**J. F. PAGES,  
SEAL ENGRAVER,  
AND LETTER CUTTER.**  
Brass and Steel Stamps and Dies, 608 Sacramento street,  
San Francisco. Orders by express promptly attended to.

**L. SCHUMANN,  
PIONEER  
Meerschamup Pipe Manufacturer,**  
No. 341 KEARNY STREET,  
Between Bush and Pine streets, San Francisco.  
The first and only Manufacturer on the Pacific Coast.  
MEERSCHAUMS MOUNTED WITH SILVER. Meerschamup  
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

**The Merchants' Exchange Bank  
OF SAN FRANCISCO.**  
Capital, One Million Dollars.  
LEVI STEVENS.....President.  
B. N. VAN BRUNT.....Cashier.  
BANKING HOUSE,  
415 CALIFORNIA STREET.  
25v20-qy

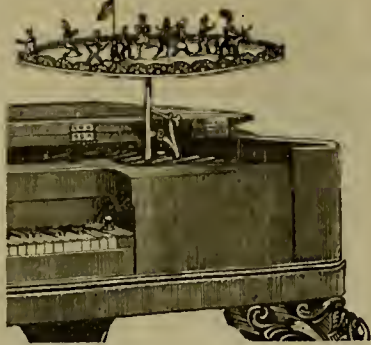
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San Francisco, Cal.**  
This Favorite House is located on Jackson street, a  
few doors west from Montgomery; offers the greatest in-  
ducements for Families. The International Coach will  
be at each Car Depot and Steamboat, plainly marked In-  
ternational Hotel, to convey passengers to the Hotel  
FREE, and to any part of the city at reasonable rates.  
F. E. WEYGANT & H. C. PARTRIDGE,  
Proprietors.  
24v22-3m

**OCCIDENTAL  
Insurance Company  
OF SAN FRANCISCO.**  
and Capital, \$300,000  
GOLD COIN  
OFFICE, 436 CALIFORNIA STREET.  
Fire and Marine Insurance.  
All Losses paid in U. S. Gold Coin.  
A. G. STILES, President.  
B. ROTHSCHILD, Secretary. 20v17

**BETTS'S CAPSULE PATENTS.**  
To prevent INFRINGEMENTS, NOTICE IS HEREBY  
GIVEN, that BETTS'S NAME IS ON EVERY CAPSULE  
he makes for the principal merchants in England and  
France, thus enabling vendor, purchaser, and consumer,  
not only to identify the genuineness of the Capsule, but  
likewise the contents of the vessel to which it is applied.  
The Lord Chancellor, in his judgment, said that the Cap-  
sules are not used merely for the purpose of the ornament  
but that they are serviceable in protecting the wine from  
injury, and insuring its genuineness.  
MANUFACTURERS—1, WHARF ROAD, CITY ROAD,  
LONDON, AND BORDEAUX, FRANCE.

## Eastern Advertisements.

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PATENT DANCING TOY FOR PIANOS,**



A Scientific Musical Toy by which inanimate figures are  
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Illustrated in No. 9 of the "Scientific Press," and  
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The PATENT RIGHT for the Pacific States for sale.  
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United States, and Wholesale by the Pub-  
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PHILADELPHIA.  
5v23-8m-cow

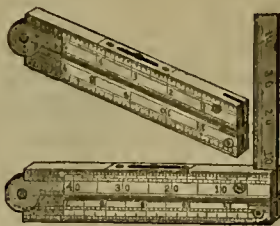
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**J. B. VEDDER,**.....Patentee.  
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DIRECTORS: **J. O. HUTCHINSON,** **L. H. PALMER,**  
**J. J. HANSON,** **J. B. VEDDER.**  
Send for Circulars containing further particulars.  
Illustrated in SCIENTIFIC PRESS of June, 1871.  
Address **L. P. JOHNSON, Pres't,**  
Box 834, Gloversville, N. Y.  
Or **L. H. PALMER,** office of Taylor & Co., 16 Wall  
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This cut represents the COMBINATION RULE, which  
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It is made of the very best quality of Turkey Boxwood,  
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ematical accuracy.  
The Square is adjustable, and can be tested and made  
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foot, and DEGREE OF INCLINATION at once. It is six  
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"By the use of one of these, a builder, mason, car-  
penter, or other workman, can always have in his pocket  
the most valuable of his apparatus used in construction,  
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**CONTINUOUS RECORD**  
of the fluctuations of steam pressure, and are therefore  
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MADE SOLELY BY  
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Fig. 1 Fig. 2 Fig. 3 Fig. 4  
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Truing up Hardened Steel, and for other mechanical  
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American, July 24th, Nov. 20th and 27th, 1869; Engi-  
neering and Mining Journal, Jan. 17th, 1871; Journal of  
the Franklin Institute, Philadelphia, June, 1870. For  
Circulars descriptive, and Prices, send stamp to  
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Will Not Explode!  
Stands a fire test over 15°  
Fahrenheit. We take ordi-  
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Our "SAFETY" Oil costs 1/2  
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lamp may be upset and broken  
without fear of explosion  
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street, Baltimore, Md.; 51 S. Water street, Chicago, Ill.; or  
Cleveland, Ohio. P. S.—5 gallons expressed for \$4 to any  
place where not for sale. 8-v213t

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**CLARKE, REEVES & CO.,  
ENGINEERS AND BUILDERS.**  
NEW BRIDGES, VIADUCTS, ROOFS, ETC.  
Would respectfully call the attention of the officers of  
Railway Companies, and Engineers having charge of  
New Bridge Constructions, to their new  
Album of Designs,  
showing various styles of New Railroad Bridges, Viaducts,  
etc., which they have either constructed or are  
prepared to construct. A copy will be mailed on ap-  
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delphia. ap8-1y

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guaranteed (in its present completeness) to meet every  
want of the household for either domestic or fancy work.  
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It is the CHEAPEST and BEST Regulator for Steam  
Engines known to mechanics.  
We offer SPECIAL INDUCEMENTS to Engine Build-  
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DAVIS & CO., Indianapolis, Ind.** au5-13w

## Travelers' Guide.

## CENTRAL PACIFIC RAILROAD.

Passenger Sunday Express'd	Express Train Daily	SEPT. 1, 1871.	Express Train Daily	Passenger Sunday Express'd
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:58 P.M.
5:50 P.M.	9:30 A.M.	Stockton.....	5:30 P.M.	12:15 P.M.
8:24 P.M.	12:25 P.M.	Sacramento.....	11:45 A.M.	6:00 A.M.
10:30 P.M.	2:10 P.M.	Marysville.....	9:10 A.M.	
	4:10 P.M.	Colfax.....	8:45 A.M.	
	7:50 P.M.	Reno.....	1:00 P.M.	
	2:30 P.M.	Winnemucca.....	4:05 P.M.	
	5:25 P.M.	Battle Mountain.....	1:25 P.M.	
	1:15 A.M.	Elko.....	8:45 A.M.	
	9:10 A.M.	Oroville.....	5:20 P.M.	
	12:00 P.M.			
	4:40 P.M.			
	6:20 A.M.			

**SAN JOSE BRANCH.**—Leave San Francisco at 9:10 a.  
m. daily (except Sundays), and 3 p. m. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily  
(except Sundays).

**OAKLAND BRANCH.**—Leave San Francisco, "6:50,  
8:10, 9:10, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
Leave Oakland, "5:15, "6:30, "7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.

**LEAVE OAKLAND, "5:25, "6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.**  
**SACRAMENTO BRANCH.**—Leave San Francisco, 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruitvale only).  
Leave Sacramento, "4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
Leave Fruitvale, "5:25, "7:35, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.  
Sundays excepted.

**CALIFORNIA PACIFIC RAILROAD.**  
4:00 P.M. 8:00 A.M. San Francisco..... 11:30 A.M. 7:30 P.M.  
5:50 P.M. 9:45 A.M. Vallejo..... 8:45 A.M. 5:45 P.M.  
8:00 P.M. 12:45 P.M. Colusa..... 7:50 A.M. 2:45 P.M.  
9:30 P.M. 2:15 P.M. Marysville..... 6:30 A.M. 1:00 P.M.  
8:15 P.M. 12:15 P.M. Sacramento..... 7:30 A.M. 3:30 P.M.  
One train Sundays—leaving San Francisco 9:30 a. m.

**SAN FRANCISCO & N. PACIFIC R. R.**  
4:30 A.M. "3:30 P.M. San Francisco..... 10:30 A.M. "7:00 P.M.  
10:15 A.M. 5:50 P.M. Donahue..... 8:12 A.M. 4:45 P.M.  
10:30 A.M. 6:10 P.M. Petaluma..... 7:50 A.M. 4:30 P.M.  
11:19 A.M. 6:55 P.M. Santa Rosa..... 6:40 A.M. 4:20 P.M.  
12:00 A.M. 7:40 P.M. Healdsburg..... 6:30 A.M. 3:00 P.M.  
\*Sundays excepted. \*Sundays only.

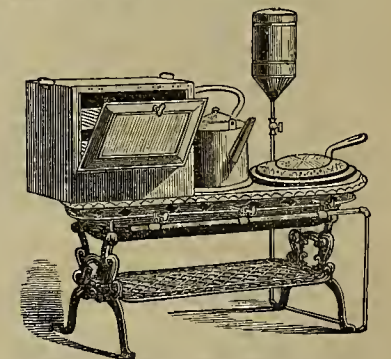
**CAL. P. R. R. CO.'S STEAMERS.**  
\*5:00 P.M. "4:00 P.M. San Francisco..... \*12:30 A.M. "8:00 P.M.  
6:30 P.M. 5:30 P.M. Benicia..... 10:30 P.M. 6:00 P.M.  
2:00 A.M. 2:00 A.M. Stockton..... 4:30 P.M.  
2:00 A.M. Sacramento..... 7:30 A.M. 12:00 M.  
\*Sundays excepted.

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**UNION PACIFIC RAILROAD.**  
Running from Ogden, Utah, to Omaha, Nebraska—over  
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**MAKING DIRECT CONNECTIONS**  
AT OGDEN with the CENTRAL PACIFIC R. R. (from San  
Francisco); also with the Utah Central R. R. to Salt Lake  
City.  
AT CHEYENNE with the DENVER PACIFIC R. R., for  
Denver City and the Mining Districts of Colorado.  
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the Chicago and Northwestern; Chicago, Rock Island and  
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Council Bluffs Railroads; also, for St. Louis and all South-  
ern cities.

**EXPRESS TRAINS RUN DAILY.**—The U. P. R. R. use  
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construction of cars for the comfort and safety of passen-  
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**PULLMAN'S MOST MAGNIFICENT PALACE SLEEP-  
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THE IMPROVED  
AMERICAN VAPOR STOVE.

No Wood, Coal, Smoke, Ashes, Stovepipe nor Chim-  
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combined.

**WILLIAM FRIEL, Manufacturer,**  
No. 69 and 71 Fourth street, S. F.  
All kinds of Lamps altered to burn Patent Oil with  
or without chimneys. Gasoline and Patent Oil for  
Stoves and Lamps for sale. County Rights for sale.  
10v23-3m



## Notes on Contributions to our Cabinet\*

No. 527.—We have received a beautiful piece of gold-bearing rock from Messrs. Coyne, Lang, McLennon & King, owners of the "Golden Chariot" ledge, Banner District, San Diego Co., Cal. The rock is fine bluish quartz and plentifully sprinkled with free gold. The gentlemen inform us that the ledge proper in this mine is nine feet wide, although with the small seams, etc., it makes up 13 feet. There are two shafts on the ledge, the main one seventy feet deep. Free gold has been found in the croppings for a distance of 800 feet. The last thirty tons crushed yielded \$156 per ton, and there are now 100 tons on the dump waiting shipment to the mill.

We have been informed by some parties from San Diego County that they have several times sent us specimens as contributions to the cabinet of the SCIENTIFIC PRESS and that no notice was taken of the circumstance as is usually done. As the specimens in question were rich in free gold, the cupidity of those through whose hands they passed on their way hither, must have been the reason for their non-arrival. Supposing that perhaps this may have happened in other cases, without our hearing of it, we hasten to assure our readers in the mines, that such tokens are especially acceptable to us, and that all ores, minerals, etc., which come to hand, are noticed in the proper place, without exception. Where it is possible, the characteristics of ore, etc., are spoken of, although our correspondents frequently neglect to give us any data concerning what is sent. The proper way to send samples of ore, minerals, fossils, etc., is to ship by Wells, Fargo & Co.'s Express, *prepaid*, and we will be sure to get them. When entrusted to private hands, parcels are often lost either through carelessness or dishonesty.

\*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

## Ladies Among the Scientists.

The British Association for the Advancement of Science, at its late annual meeting at Edinburgh, admitted females to take part in the proceedings. Mrs. Becker, of Manchester, by special invitation prepared and presented a paper on "The Employment and Wages of Women," one of the most striking points of which was the presentation of certain facts going to show that among the working classes in England the lighter work was by no means apportioned to women—a course which tended to subvert the general principle of giving to the weaker the lighter burdens.

It is said that this admission of women to the deliberations of the Society was most cordial, and the impression produced was very favorable to the ladies and the cause they are so zealously pushing forward—the franchise movement, of which Mrs. Becker is a prominent advocate.

PURE BLOOD SHEEP AND GOATS FOR OREGON.—Messrs. Thos. Butterfield & Son, of Hollister, Cal., are taking 14 head of pure blood Cotswold sheep and 25 Cashmere goats for exhibition to the Oregon State Fair, at Salem, Oct. 5th. We believe they will make a fine exhibition. One Cotswold ram weighs 350 lbs. It is the owner's intention to sell the stock in our neighboring State.

WOMEN govern us anyhow; let us then strive to render them as perfect as possible. The more they are unenlightened, so much the more shall we of the opposite sex be. On the cultivation of the mind of women depends the wisdom of men. It is by wisdom that nature writes on the hearts of men.

RIVERSIDE COLONY.—Some time since an association was formed for the purpose of establishing a colony in San Bernardino county, Cal., and circulars were issued, setting forth the advantages of the location, climate, etc. We are informed that thus far the scheme has been a success, although the Magdalena Bay failure has done much to retard the progress of this and other genuine enterprises of the kind. The lands owned by this association are located in the valley of the Santa Anna, San Bernardino county, between the towns of San Bernardino and Anaheim, about 40 or 50 miles from the ocean. The settlement is on the banks of the river, on a bluff about 100 feet above it. An irrigating ditch has been dug, which is 12 miles long, 8 feet wide, and 3 feet deep, with a fall of about one inch to the rod, through which the water flows rapidly. There are now about a dozen families in the valley and our informant states that they are all perfectly satisfied with the prospects ahead. About 100 acres of corn are now growing, but as yet no grain, for the reason that the ditch was only completed in the latter part of July. Judge North, Dr. Greaves and several other members of the association have set out small orchards and are growing, successfully, orange, lemon, olive, fig, apple, pear, grape, and numerous other fruit trees.

We are assured that this is no land-grabbing scheme, but a *bona fide* enterprise for the purpose of securing both for the members of the association and others, homes at a small expense.

OVERLAND MONTHLY.—The new feature in the *Overland Monthly* for October consists in the introduction of illustrations for the first article. The subject is "Tropical California," and the wood-outs are scenes and objects in the southern part of our State. The contents of this number are: "Railway Stations," "Placer," "In the Sierras," "On and About the Avon," by Joaquin Miller; "The Wilds of Western Mexico," "The Stewardess' Story," "The Oregon Indians," "Almost," "The Language of Confucius," "Ideal Womanhood," "Indifferent Metallurgy," "The Mysterious Lady of Nisqually," "Cultivation of the Present," "From Year to Year," and the usual Book Notices.

PURITY OF THE BALLOT.—Most of the political evils with which this county is afflicted is traceable to the use of money in buying influence. The English, recognizing this fact, have proposed a law absolutely invalidating the election of any candidate who by himself or agent shall spend money to secure his own election. We cannot under our Constitution pass so sweeping a measure as that, but we can and should so arrange matters as to pretty effectually eliminate the power of money from our political contests.

THE POTATO BLIGHT is threatening great destruction to the crop in Ireland. It has made its appearance in many localities, and fears are entertained that it will become general. A potato blight in Ireland cannot, now, however, work the damage it has done in years ago, for the reason that much corn is now grown there, and the peasantry have learned to eat Indian meal. The corn crop is promising, and no fears are entertained there of being anything like a serious famine.

LAST WEEK'S RECEIPT OF FRUIT.—Mr. Lusk, of the Pacific Fruit Market makes the following return of fruit received in this city last week:—

Six thousand boxes and 3,000 baskets of apples, 3,000 boxes and 900 baskets of peaches, 1,800 boxes of plums, 8,400 boxes of grapes and 4,800 boxes of pears, besides any quantity of minor fruit, were received. Eight hundred or 900 boxes of pears had to be thrown away, owing to a glut in the market.

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

SUCCESS IN BUSINESS.—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24 Post street, San Francisco. This is the only school on the Pacific Coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which cannot be discussed here. Call at the College and examine its workings. If unable, send for circular, and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address E. P. HEALD, President, Business College, San Francisco, Cal. 10v23hp-3m

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors. Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught. Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TART, Oakland, Master Fifth Class. sc9hpt

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 76 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 167 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mbp

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

## To Lease.

A promising mine in a locality easy of access. Wood and Water plenty and near. Full particulars given by "W. H.," at this office. 12v23-1m

## A Novelty Printing Press for Sale.

It is a new foot-power Press, and just the thing for a small country job office or for amateur printers, and druggists and others who wish to do their own printing. At manufacturers' price, with freight added. Enquire at this office. 11v2tfr-1ams

## IMPORTANT TO MINERS.

A CHEAP AND DURABLE DEVICE FOR SAVING FINE GOLD AND QUICKSILVER.

Frey's Improvement on Evans' Undercurrent Sluices.

This is a sluice made of cast-iron, with transverse corrugations on the bottom, semi-circular in shape and three inches deep. At the bottom of each alternate corrugation is a narrow slit through which the heavier material falls down into another rut below with larger corrugations. Both rittles are set on the same grade, which should be about one foot in twelve. The lower box is charged with quicksilver. These Sluices do not clog, nor do they require any attention beyond cleaning up once a week. These sluices have stood the test of use in quartz mills below all the contrivances for saving gold, and have made large returns of gold, silver, concentrated sulphur and quicksilver, that would otherwise have been lost. From the Green mine, Ophir District, Placer county, I have received the following certificate:

OPHIR, August 6th, 1871.  
DR. JOS. M. FREY.—Dear Sir: Having been engaged as amalgamator in Green & Co.'s mill, where we are using the Frey's pans and settler, and having below the settler a set of Frey's Undercurrent Sluices and Rittles, I am well satisfied, after some sixteen years experience in the use of various modes and machines for amalgamation of ores, that your Rittle is capable of concentrating and saving most of the fine quicksilver and light amalgam, in which consists the great source of loss by every known process of working ore.

(Signed) Yours respectfully, J. R. MORKLAR,  
Also, from E. N. Rottie, of Nevada Metallurgical Works, 21 First street, San Francisco:

Dear Sir: Having had opportunity to watch your Corrugated Rittles, in operation for over a month at Reno, I can say that these Rittles work splendidly as quicksilver savers and concentrators of unroasted ore. I have also no doubt that they could save very fine gold, as for instance in black sand or slimes, better than any like apparatus in use. Respectfully, (Signed) E. N. RIOTTE.  
Assay of tailings saved at the Rhode Island Mills, Nevada, by these Sluices:  
Gold.....\$75 24  
Silver.....76 96  
Quicksilver.....250 lbs. to the ton  
This was the saving of one week.  
For further particulars address WATERS & CO., No. 54 J street, Sacramento, the Agent for the State. sc23-3m

## Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CAYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction, and not likely to get out of order, and very durable.

It is Very Efficient and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer, D. N. PHELPS, al-1y-awbp San Leandro, Alameda County, Cal.

## EIGHTH MECHANICS' FAIR.

GOLD MEDAL AWARDED,

As Officially Announced September 9, 1871,

—TO THE—

## PACIFIC PNEUMATIC GAS COMPANY.

12v23-1m

## ORIENTAL POWDER CO.,

MANUFACTURERS OF

Blasting,  
Mining, and  
Sporting Powder,

Of superior strength and cleanliness.

Patent Compound for Blasting  
and Mining.

Electric Batteries, Fuses, and  
Leading Wire for Blasting.

Address

A. W. TAYLOR, Agent,  
Corlune, Utah.  
18v21-1amt21

Send for Circulars.



Under a Burning Sun, where Bilious affections and Fevers of various descriptions so generally prevail, Tarrant's Effervescent Seltzer Aperient Has been successful beyond all parallel. Hence the physicians of the tropics give it their emphatic sanction, prescribing it in preference to every other aperient in use. The patients, of course, gladly acquiesce, for this preparation is one of the most delightful, as well as mild and cooling cathartics, chemistry has yet devised, and possesses every medical virtue of the far-famed German Seltzer Spa. It is a powder that only requires the addition of water to produce in an instant a delicious effervescent beverage, as well as an invaluable medicine. Ask for and accept none but the genuine.

SOLD BY ALL DRUGGISTS.



## The California Powder Works

No. 314 CALIFORNIA STREET,  
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,  
MINING,  
And BLASTING  
POWDER.

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our  
HERCULES POWDER,  
Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.  
A circular containing a full description of this Powder can be obtained on application to our Office.  
16v20-3m  
JOHN F. LOHSE, Secretary.



## Mining and Other Companies.

Outing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—about 10 o'clock—in the very latest hour we can receive advertisements.

**Alameda Coal Mining Company—San Francisco and Alameda Counties, State of California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 7th day of September, 1871, an assessment of fifty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, 409 Battery street (first floor), between Clay and Merchant streets. Any stock upon which said assessment shall remain unpaid on the 9th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 30th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
M. PHILLIPS, Secretary.  
Office, 409 Battery street, San Francisco, Cal. sc104w

**Bellevue Mining Company—Location of works, Ophir District, Placer County, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of August, 1871, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 3d day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 23d day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. CROISE, Secretary.  
Office, 409 California street, San Francisco, Cal. sc24w

**Gold Run Mining Company—Location of works, Gold Flat District, Nevada County, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at their office, No. 225 Sansome street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 10th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 1st day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
C. C. PALMER, Secretary.  
Office, 225 Sansome street, San Francisco. sc24w

**North America Consolidated Mining Company—Location of works, White Pine County, State of Nevada.**  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 31st day of July, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. of Shares.	Am't.
Eaton, J. A. Trustee.....	62	100	\$20 00
Eaton, J. A. Trustee.....	63	100	20 00
for S. Oumhinner.....	71	400	80 00
Eaton, J. A. Trustee.....	72	200	40 00
for A. Lathrop.....	75	200	40 00
Eaton, J. A. Trustee.....	76	300	60 00
Eaton, J. A. Trustee.....	77	100	20 00
Lewis, J. F.....	5	1000	200 00
Lewis, J. F.....	34	250	50 00
Lee, O. B.....	56	20	4 00
Mason, J. E.....	73	300	60 00
Pinkham, S.....	20	650	130 20
Pinkham, S.....	45	165	33 20
Spinnay, O. R.....	12	655	133 20
Spinnay, G. R.....	46	165	33 20

And in accordance with law, and an order of the Board of Trustees, made on the 31st day of July, 1871, "and also subsequently made on account of postponement," so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Wednesday, the 18th day of October, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. sc23w

**Quail Hill Mining and Water Company—Location of works, Calaveras County, California.**  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

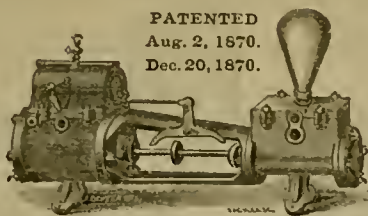
Names.	No. Certificate.	No. Shares.	Am't.
W. V. Cronise.....	26	1	\$20 00
W. H. Sharp.....	28	1	20 00
A. E. Hill, Trustee.....	31	50	1000 00
A. E. Hill, Trustee.....	37	119	2380 00
L. F. Loveland, Trustee.....	36	60	1200 00
A. E. Hill, Trustee.....	39	120	2400 00
A. E. Hill, Trustee.....	40	7	140 00
F. S. Spring, Trustee.....	41	120	2400 00
E. F. Denison.....	42	1	20 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street (up stairs), San Francisco, Cal., on the 16th day of October, 1871, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
T. F. CROISE, Secretary.  
Office, 409 California street, San Francisco, Cal. sc30-3w

**Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the fourth (4th) day of September, A. D. 1871, an assessment (No. 1) of one dollar and twenty-five cents per share was levied on the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 9th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.  
J. W. CLARK, Secretary.  
sc34w

**Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, Cal.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of September, 1871, an assessment of three dollars (\$3) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 28th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
D. A. JENNINGS, Secretary.  
Office, Room No. 26, 419 California street, San Francisco, California. sc23-td

## THE SELDEN PUMP.



Combines Simplicity and Durability to a Remarkable Degree.

Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—especially Mining.

Full description in *Scientific Press* of August, 1871.

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7v23-1y-cow

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American Institute, 1867 and 1870.

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SOLE MANUFACTURER

Hardick's Patent Double-Acting Steam Pump and Fire Engine.

PATENTED IN ENGLAND, BELGIUM AND FRANCE. SEND FOR CIRCULAR.

22v26t-cow

## I. N. WILFONG'S

PATENT CIRCULATING

## STEAM BOILER.

This cut represents an improvement on the old style of Cylinder Boiler, and combines all the following great advantages: Rapid circulation and generation of steam; economy in fuel; durability, safety, and simplicity of construction; requires but little attention; is easily repaired, and moderate at first cost.

We have now a number in successful operation, and respectfully refer to the following well known parties: Hastings & Co., Seventh and Cherry streets; Jos. Lea & Co., 128 Chestnut street; J. S. Huber, Oermantown; Holt & Bro., Sixth and Susquehanna avenue; Albion Print Works, Conshohocken, Pa.; S. H. Dickey, Oxford, Pa.—all of which are giving ENTIRE SATISFACTION. Parties wishing to investigate the success of our New Boiler can do so by calling at any of the above named places, or to

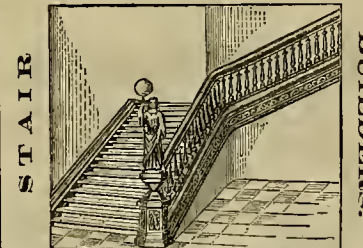
I. N. WILFONG,

131 and 135 North Twenty-second St.,

PHILADELPHIA, PA.,

Manufacturer of all descriptions of Boilers (Rogers & Black's patent included), Tanks, Still, Pans, and general Iron Work. Orders solicited from all parts of the country, and, when received, promptly attended to. State and County Rights and Royalties for sale as above. 6v23-6m-cow

## SANBORN &amp; BYRNES,



South Point Mills, Berry Street,

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Pianos to Let.

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I street, between Sixth and Seventh, Opposite old Capitol, SACRAMENTO.

ma18-tf

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WIESTER & CO.,

17 New Montgomery street (Grand Hotel), SAN FRANCISCO.

THE

Gutta Percha and Rubber Manufacturing COMPANY,

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Patent Combination Carbolic Ssams Fire Hose, Steam and Petroleum Oil Hose, Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Pure Vulcanized Sheet Rubber, Fire Buckets. 12v23-3m J. W. TAYLOR, Agent.

## Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Brush, R. G.....	246	38	\$ 28 50
Brush, R. G.....	288	62	46 50
Brush, R. G. Trustee.....	331	50	37 50
Copp, F. P. Trustee.....	310	100	75 00
Copp, F. P. Trustee.....	311	40	30 00
Copp, F. P. Trustee.....	312	40	30 00
Copp, F. P. Trustee.....	313	22	16 50
Copp, F. P. Trustee.....	314	255	221 25
Hathaway, W.....	224	274	205 50
Leahy, John.....	256	1	75
Lake, Geo. C.....	236	10	7 50
Lake, Geo. C.....	328	203	152 25
Miller, W. E.....	187	32	24 00
Miller, W. E.....	248	74	55 50
McCurdy, J. E.....	173	23 1/2	17 62 1/2
McCurdy, John R.....	139	75	56 25
McCurdy, John R.....	190	12	9 00
McCurdy, John R.....	212	200	150 00
Miles, Harriet A.....	307	10	7 50
Swain, H. O.....	245	100	75 00
Swain, H. O.....	317	50	37 50
Shaffer, John.....	264	1	75 00
Sperry, Richard.....	302	2 1/2	1 87 1/2
Vigoureux, A. W.....	302	100	75 00
Weller, Jr., John B.....	305	20	15 00

And in accordance with law and an order of the Board of Trustees, made on the 2d day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, at the 25th day of September, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
R. O. BRUSH, Secretary.  
Office, 314 California street, San Francisco, California. sc16-2w

OPHIR COPPER S. AND G. M. COMPANY—POSTPONEMENT.—The above sale is hereby postponed until Saturday, September 30, 1871, at the same hour and place. By order of the Board of Trustees.  
sc23-2t B. G. BRUSH, Secretary.

## St. Patrick Gold Mining Company.—Location of works, Ophir District, Placer County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Geo. D. Roberts.....	15	100	\$500 00
J. W. Gashwiler.....	25	100	500 00
J. W. Gashwiler.....	51	10	60 00
John F. Boyd.....	35	100	500 00
F. A. Hill, Trustee.....	56	50	250 00
F. A. Hill, Trustee.....	59	100	500 00
F. A. Hill, Trustee.....	60	50	250 00
F. A. Hill, Trustee.....	61	50	250 00
F. A. Hill, Trustee.....	78	33	165 00
F. A. Hill, Trustee.....	81	100	500 00
F. A. Hill, Trustee.....	90	60	300 00
F. A. Hill, Trustee.....	89	200	1000 00
W. L. Ustick.....	140	10	50 00
Kate O. Cronise.....	64	2	100 00
A. C. Peachy.....	53	100	500 00
A. C. Peachy.....	79	100	500 00
E. A. Richardson, Trustee.....	82	10	50 00
E. A. Richardson, Trustee.....	84	5	25 00
E. A. Richardson, Trustee.....	85	20	100 00
E. A. Richardson, Trustee.....	98	300	1500 00
E. A. Richardson, Trustee.....	99	60	300 00
E. A. Richardson, Trustee.....	100	60	300 00
E. A. Richardson, Trustee.....	101	300	1500 00
E. A. Richardson, Trustee.....	102	200	1000 00
E. A. Richardson, Trustee.....	121	10	50 00
E. A. Richardson, Trustee.....	122	80	400 00
E. A. Richardson, Trustee.....	127	70	350 00
E. A. Richardson, Trustee.....	132	10	50 00
E. A. Richardson, Trustee.....	136	7	35 00
J. Clem Uhler, Trustee.....	151	50	250 00
J. Clem Uhler, Trustee.....	152	50	250 00
L. Maynard.....	110	10	50 00
H. Schmiedel.....	120	40	200 00
J. Straus, Trustee.....	128	25	125 00
J. Straus, Trustee.....	129	25	125 00
J. Straus, Trustee.....	130	25	125 00
J. Straus, Trustee.....	131	25	125 00
O. P. Sutton, Trustee.....	134	50	250 00
H. K. White.....	112	4	20 00
T. Dixon.....	143	25	125 00
M. Mayblum.....	72	5	25 00
M. Mayblum.....	114	10	50 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of August, 1871, so many shares of each parcel of stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street, San Francisco, State of California, on the 9th day of October, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
T. F. CROISE, Secretary.  
Office, 409 California street (up stairs), San Francisco, California. sc23-3t

## Wanted.

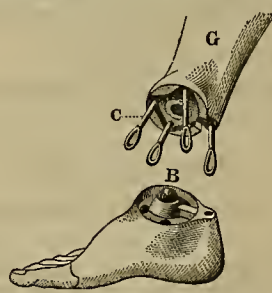
We desire to make arrangements with a reliable man to act as general agent for Oregon and Washington Territories, to sell a new and valuable article.  
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Manufacturer of Dr. Douglas Bly's

## Patent Artificial Limbs,

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All other kinds changed and repaired. The late improvements on the Dr. Bly Limbs, especially his two best Legs (one with, the other without lateral motion at the ankle joint), make them far superior to all other Artificial Legs in use. (See illustration of anatomical leg, No. 8, present volume.) For particulars call or send for circular. Circulars sent free. Address MENZO SPRING, 11v23-sa 101 Jessie street, San Francisco, Cal.



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Mining Machinery of Every Description,

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Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR. GODDARD & CO.  
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Quartz, Flour and Saw Mills,

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Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

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4v23tf**PACIFIC Rolling Mill Company,**  
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**RAILROAD AND OTHER IRON**  
Every Variety of Shafting,  
Embracing ALL SIZES of  
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**LIGHT AND HEAVY CASTINGS,**  
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Machinery and Castings of all kinds.

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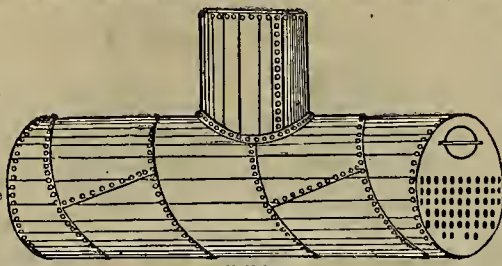
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YOUR ATTENTION IS INVITED TO

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Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

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IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

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To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

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This Mill is Greatly Superior to the

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by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.  
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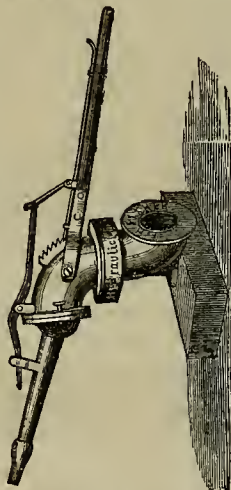
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**Machinery.****HYDRAULIC CHIEF.**

FISHER'S KNUCKLE JOINT AND NOZZLE.

is the Best Hydraulic Machine in Use.



MACHINES MANUFACTURED TO ORDER,

to throw from one to an eight-inch Stream.

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MOLDING, MORTISING,  
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MACHINES,  
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MACHINES, ETC.,For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.  
Superior to any in use.J. A. FAY & CO.,  
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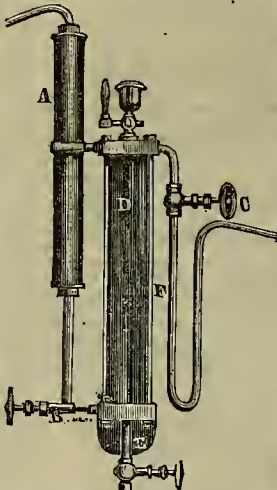


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PHILADELPHIA.

Woodworth Planers a Specialty.

2v23-ly

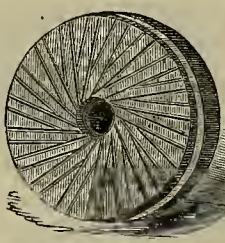
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Or "TALLOW CUP." This is a California invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION:—D, is a glass chamber which contains the lubricant. O is a valve, connecting with cup which introduces the lubricant into chamber D. E, is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. F, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the injection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and G. 1e18-tf

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**BOILER MAKERS**

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2v21-tf



THE PATENT  
Novelty Mill and Grain Separator



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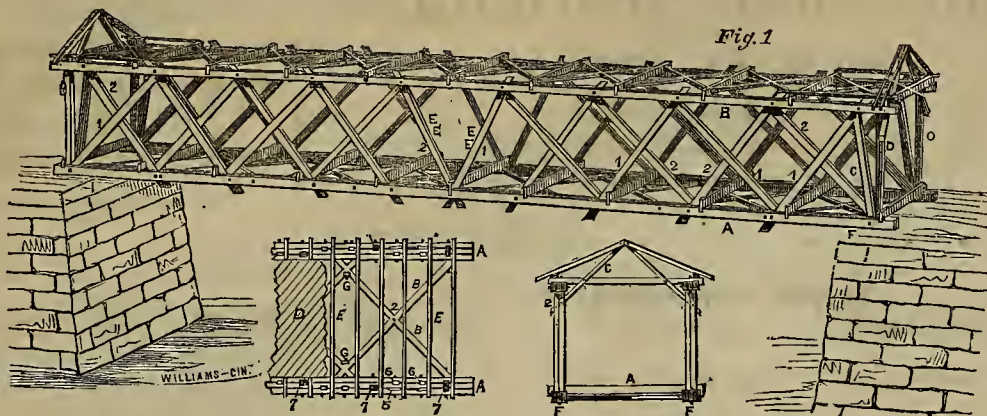
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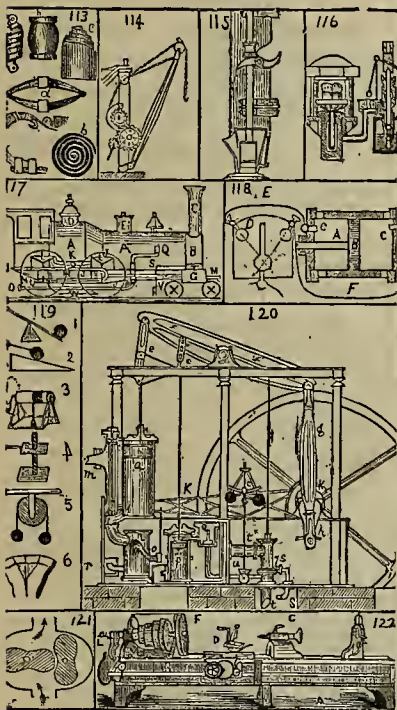


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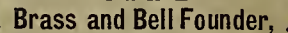
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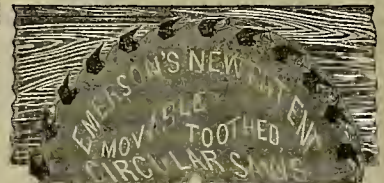
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Patent Solicitors.

SAN FRANCISCO, SATURDAY, OCTOBER 7, 1871.

VOLUME XXIII.  
Number 14.

## Portable Steam Engine.

The utility of the portable steam engine is no longer a question. Its rapid introduction for permanent, as well as temporary uses and the constantly increasing demand for this form of motive power, has directed our best mechanical skill to its perfection. The engine represented in our cut is permanently mounted, and can be moved with as much facility as a loaded wagon. It is supplied with an ash pan, all possible precaution being taken to protect the surrounding material from danger of fire, and is desirable for many purposes. As will be seen by the cut, there is very little machinery, and the simplest possible mechanism is used in the working parts, so that there is no liability to get out of order.

The boiler is of the locomotive pattern, large fire box, and of great steaming capacity; there is ample water and steam room, and a large steam dome made of wrought iron, in the top of which is a man-hole of size sufficient to admit free access to the interior. This access is of vital importance in removing scale and sediment; the want of which often proves destructive to life and property.

The engine is attached to a bed plate accurately fitted and securely bolted to the surface of the boiler, at its center. The cylinder is attached to one end of this plate, and the main shaft at the other. This plate receives all the strain of the engine, entirely relieving the boiler sheet; all parts of the engine are attached to this plate and can be removed at will and replaced without fear of disarrangement. The main shaft works in brass boxes, which are fitted to standard seats, and can be duplicated, insuring a perfect alignment without recourse to a skilled mechanic to re-line and habbit the main boxes. The piston has metallic packing. The force pump is supplied with brass ball valves. The crank is accurately balanced. The steam exhausts into the smoke-head, creating a powerful draft. The water is thoroughly heated after it leaves the force pump, by the exhaust steam in the heater, located under the cylinder and slides; in short, it is a duplicate of the most approved locomotive.

The lift pump is located at the opposite side of the boiler, and not seen in the cut. It is driven by a belt at one-third the speed of the engine. The water is raised to a greater altitude than the force pump, thereby filling the force pump by gravity, instead of suction, insuring a positive

action. For further information concerning these engines, address Lane & Bodley, corner John and Water streets, Cincinnati, Ohio.

## Land Decision.

Judge Field rendered a decision last week in the United States Circuit Court, which affects the interests of many persons in Nevada. The Central Pacific R. R. Co. brought suit to quiet title to a number of pieces of land claimed by settlers who had made their locations on the line of the road, after the passage of the bill, but before the route was determined. These

## An Alleged Wrong Among Miners.

We are assured by well-informed persons that a report is believed to a considerable extent in certain localities in this State and Nevada, which reflects seriously upon certain Cornish foremen or mining captains. This is not a mere rumor, which we should pass by unnoticed, but a charge which, from the extent to which it is believed, we cannot pass over in silence.

This charge is not made against Cornishmen as a class, but upon a certain number of Cornishmen; but we believe only Cornishmen are accused as yet. Nor has the charge, we are glad to say, been proven

found in the mines. This last evidence is manifestly insufficient to sustain the charge. As to the direct statements, we, at a distance, are unable to judge of their credibility. While we cannot deny that the accusation may be true in certain cases, we believe that it cannot hold as a general assertion.

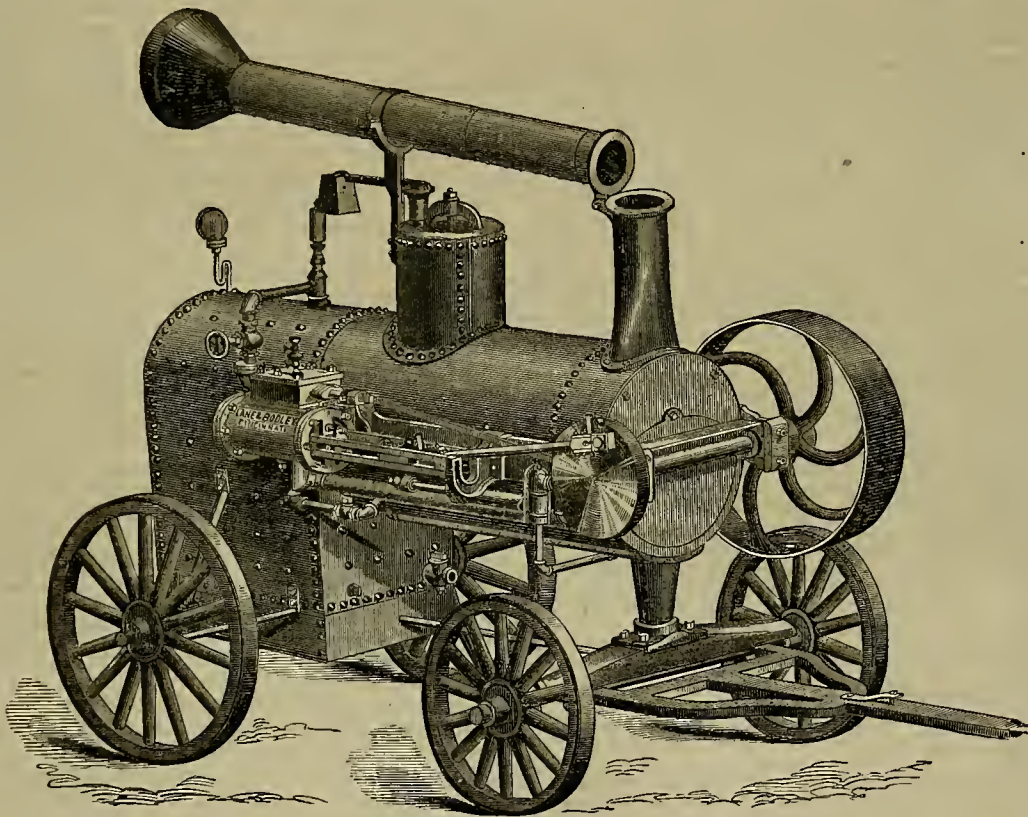
We cannot refrain, however, in view of the possibilities, from calling the attention of workmen to the great evils to themselves and others which would result from such a system. In regard to excluding all but one's own nationality, the plan is wrong. It is perhaps natural to prefer our own countrymen, and the feeling is praiseworthy to a certain extent, but carried too far it becomes provincial and foolish. No one land contains all the best and wisest of men and has no fools or knaves. And in our free country, where we boast of welcoming all men, recognizing no distinctions of class, the matter is particularly out of place.

With regard to the levying of blackmail by the foremen, we cannot too strongly express our disapprobation. This system prevails, it is believed, to a large extent among the Chinese. Our Cornish miners will certainly refuse to adopt the custom from this people. This system would work the greatest injury to the workmen themselves. It would repress merit, discourage skill, give rise to deceit and laziness. It would prevent the meritorious from rising above their present positions, would impose class distinctions more burdensome than now exist in some other parts of the world; would create a new order of matters, despotic in their power and unjust in their rule; would make the workmen abject slaves.

Of the wrong to employers we need not speak; this evidently would be very great and would lead to serious troubles.

Let no one think that the above is dictated by prejudice against Cornishmen or in order to create a feeling of distrust against them. With regard to Cornish miners we have none but the best wishes. We know that to their acknowledged skill our country is deeply indebted for its growth and prosperity. But the charge against some few of them has obtained to a certain extent and cannot therefore be longer neglected. The best way to dispel an unjust accusation is to give it publicity; the most effective method of stopping a concealed wrong is to bring it to light.

Those who think the oil wells of Penn. have failed, may be surprised to learn that petroleum in this country is on a steady increase. In 1860 we exported 1½ millions of gallons; in 1868, 99,000,000, and last year 141,000,000. The increase in the flow of oil in Pennsylvania since 1867, has been nearly 50 per cent.



LANE & BODLEY'S PORTABLE STEAM ENGINE.

tracts were owned by the company, and the settlers demand damages and threaten to bring suit. The company forestalled them by a suit to quiet title. Justice Field decides that the grant to the railroad went into effect when the bill passed; the settlers took their claims subject to the provisions of the bill; and the rights of the company to the land are not dependent upon the date when the road was located. These points arose on a demurrer, but as that raised all the material questions in the case, the decision overruling the demurrer virtually finished the suit.

**A RICH MINE.**—The Sydney (Australia) Herald says that the Caledonia Co. of New Zealand recently divided \$375,000 among the shareholders, as the result of 14 days' working. Five hundred and sixty tons of quartz yielded 25,000 ozs.—about \$425,000.

with certainty, so far as we know. But its effects are such that it becomes a matter of justice to all parties that the matter should be ventilated, in order that the accusation may be stepped, if ungrounded, or the wrong done away with, if it actually exists.

The charge is this: That Cornish foremen, to a greater or less number, have adopted a system of getting rid of persons of other than their own nationality, no matter how great their merit may be, in mines where they have the power of hiring and discharging the workmen, employing only Cornish miners, from whom, in return, they receive a certain portion of their wages. This charge is founded on direct statements made by miners, and is thought to be sustained to a considerable degree by the fact that in certain cases none other than Cornishmen are to be



## MECHANICAL PROGRESS.

### Water-Pressure Engines.

In mountainous regions, where water under a considerable head of pressure can be had, it may be advantageously utilized, for pumping, hoisting, or other mining operations requiring power, by means of hydraulic engines and surface or underground wheels. There are many places on the Pacific coast where these engines can be introduced with advantage. They are usually constructed for pumping only, and are single-acting, with long cylinders placed vertically over the pump-shaft, the pump-rod being simply a prolongation of the piston-rod. The water is admitted to the under side of the piston, and when it has run its upward stroke, the water is allowed to flow out, and the piston descends.

The absence of any sensible elasticity in water renders the motions resulting from its use under pressure in engines, susceptible of perfect control; but the same inelasticity causes sudden shocks and blows to the moving parts if the inlets and outlets be made as in engines operated by the elastic fluids, steam and air. It is therefore necessary to use valves of peculiar construction, by which the flow of the water may be gradually increased or slackened, and to provide other means for preventing impact and securing smoothness of action.

Many such engines have been constructed for pumping mines abroad, and have operated successfully for long periods, with very little expense or attention. One was erected by the engineer Trevethick at the Alport mines, in the year 1803, and worked continuously for forty-seven years, until 1850, when the work upon the mines ceased. In this engine, the water was admitted first on one face of the piston and then upon the other, alternately, and the inlets and outlets were opened and closed by two pistons at the side.

An engine erected by Mr. Darlington at these mines had a cylinder 50 inches in diameter and a stroke of 10 feet. The cylinder was placed directly over the shaft, and the piston and pump-rod were continuous. The column of water was 132 feet high, and gave a pressure upon the piston of about 8 pounds to the square inch, or more than 50 tons upon its area. Water was raised from a depth of 22 fathoms, by means of a plunger 42 inches in diameter, and, when the mine was very wet, nearly 5,000 gallons of water per minute were discharged into the adit. The water under pressure was admitted under the piston only; cylindrical valves admitted a full flow for seven-eighths of the stroke only, and then commenced closing, while a small valve opened and allowed enough water to pass in to complete the stroke.—*Blake on Mining Machinery.*

### Management of Belts.

A leather belt in order to run smoothly, and with the best effect, should have but one laced joint; and in making this joint, the two ends should be cut at right angles with the sides. The holes will have less tendency to diminish the strength of the belt in the cross section if they are cut with an oval punch. The laces should not be crossed on the inside, and care must be taken to put them in evenly and of equal strength at the two edges of the belt.

In case rivets are employed, the heads should be left in on the inside surface of the belt so as to leave no obstructing points to come in contact with the pulley, the washers being placed on the outer surface. Waxed ends used in connecting heveled and lapped ends should also be carefully confined within the surface on the inside of the belt, as they will work mischief by wearing if allowed to project.

The more nearly an equal thickness and perfect straightness are secured in the belt throughout its whole length, the better it will perform its work. Dust, grease and lubricating oils should on no account be allowed to accumulate either on the belt or pulley. If the motion is to be very rapid, the belt should, if possible, be endless—that is, it should have none but permanent joints, and it is especially desirable that the density and dimensions should be uniform throughout, all unevenness of texture being carefully avoided. If properly treated, no appliance for the transmission of power possesses more valuable advantages than the belt—its simplicity, smoothness and facility of working being scarcely attainable by any other means; but it also

demand the most vigilant attention to maintain a good working condition and secure the greatest economy of power.—*Leftell's Mechanical News.*

### Grinding Wheat Without Millstones.

At a recent meeting in Edinburgh, of the British Association of Science, a paper was read by Mr. Thomas Carr, upon a new mill for grinding wheat. It is described as reducing wheat by percussion, while it is unsupported, and projected through the air. When the wheat passes through the machine, it is struck by a series of hars moving in opposite directions. These reduce the wheat so instantaneously to a state ready for holting, that no injurious heat is caused, and consequently the flour is of much superior quality to that obtained by the usual way of grinding, and also at a much less cost. An Edinburgh firm has one of these disintegrating flour mills in full operation, and the advantages in its favor over the millstones it supersedes, are pointed out in Mr. Carr's paper. It rarely needs repairing in comparison with other millstones; requires fewer men, and thus saves in wages; is free from loss by scorching, occupies less space, and requires less driving power; and in addition to all this, produces a superior quality of flour.

If people would use flour that is "holted" less,—in other words, if more of the constituent parts of the grain were left, as God intended they should be,—there would be comparatively nothing heard of that fashionable complaint, "dyspepsia." But many housewives will continue to judge of the nutritious quality of their bread by its whiteness, which is a false criterion, and apothecaries will continue to fatten on this blunder.

**NEW INDICATING INSTRUMENT.**—A new instrument for indicating the velocity of flowing liquids, and for measuring the speed of ships, called the rhysimeter, has been invented in England, and has attracted much attention among scientific men. The instrument, as described, is in principle like the well-known anemometer, by which one is able to measure the speed of hot air, flame and smoke, contaminated with dust or corrosive vapors, as met with in furnace flues and factory chimneys. Both in the anemometer and rhysimeter the impact force of the current, and also its tendency to induce a current parallel with itself, are measured and made to become indicators of the force and velocity of the stream. A still more important application of the instrument, however, is that of measuring the speed of ships. The indicator may be in the captain's cabin. It resembles in size and appearance a barometer. In it a column of mercury indicates continually the speed of the ship. The full effect of the velocity is imparted to the mercury, without any appreciable loss by friction or otherwise, so that the indicators must always be absolutely correct. The instrument may be made self-registering, showing on a dial the total number of knots the ship has run, and marking on a piece of paper the precise speed attained at all periods of the voyage. The practical value of such an invention is obvious.—*Iron Age.*

**A USEFUL ALLOY.**—A metal composition which may be cast on steel and iron and which will adhere thereto, is much needed, since it is in practice an advantage to unite steel or iron with brass by casting; the difficulty of uniting by screws, bolts or pins being thus saved. In most cases, however, the inequality of the expansion produced in the two metals by change of temperature prevents their lasting union, and it rarely happens that the superficial union is sufficiently close to be permanent. The following composition closes firmly around iron and steel without any danger of becoming loose. It consists of 3 parts of tin, 37½ parts of copper, and 7½ parts of zinc. Since the last metal is partly converted into vapor at a high temperature, the above proportions may be slightly increased.

A wire brush for scratching scale from large round hars during the rolling is in use at the Griswold mill, Troy. The brush is fastened to the rest bar on the discharging side of the rolls, and the bar passing through the wire is effectually cleaned or freed from all scale by the time it gets the usual number of passes through the finishing grove. It is said that a brush of this kind, same as frequently used at foundries for cleaning castings, properly arranged behind the rolls, is better than the trough of cinders sometimes used in steel mills, and which is placed behind the rolls in same position.

## SCIENTIFIC PROGRESS.

### The Triumph of Science.

Recent reports from the East give full particulars of the prediction by the weather Signal Bureau, at Washington, of the two terrible cyclones which were developed off the Florida coast about the middle of August last. These predictions are considered as striking and important triumphs of science in the direction indicated.

It appears that the fearful cyclone which developed itself near Savannah, on the evening of the 20th of August, was detected and pre-announced at thirty-five minutes past 7 o'clock on the morning of the 17th as then existing "between the Bahamas and Georgia." The announcement from the office of the chief signal officer took place nearly three entire days before the tropic-horn monster fell upon the Georgia coast in all its fury.

On the morning of the 18th the announced path of "the cyclone in Florida" was "to the north-west into Georgia, with easterly winds and rain," and later in the day this telegram was re-affirmed by the signal officer. On the 20th it was added at an early hour by telegraph, "The center of the cyclone will probably keep a short distance east of the immediate coast line, and he off Cape Hatteras to-morrow morning."

These storm warnings issued to all the harbors interested, between forty-eight and seventy-two hours in advance of the threatened hurricane, it seems by our latest reports, were verified by fatal punctuality. The correct predictions of the bureau saved a great many lives, and an immense amount of property. The damage by the storm in Savannah was estimated as not much less than \$100,000.

On the morning of the 24th a second cyclone, (the first had just died away,) was discovered and reported, which in forty-eight hours verified the predictions of the Signal Office in a fierce visitation of the South Atlantic coast. As predicted, its track lay "more to the west than that of the cyclone of the 18th inst." The full returns from Georgia and Tennessee show that it has been a serious and severe storm. Thus, in the space of a few days, we have had the strongest evidence of the wisdom and ability of our national storm signal system.

At the time of the occurrence of the above cyclones the West India and Panama cable had not been laid to the Islands of St. Lucia and Barbadoes, which are in the very center of the region where the cyclone was generated. Their wires are now in operation, and will on any similar future occasion greatly facilitate and hasten the making up of reports. Their further extension to Panama will still more increase the usefulness of the Bureau.

### Magnetic Wells.

Much has lately been said about certain wells in Michigan, the waters of which are said to contain most extraordinary magnetic properties. The controversy as to the magnetism contained in the water is not yet settled. Professor Winchel gave it as his opinion before the American Scientific Association, at their meeting in Troy last year, that the water was not magnetic, but in his late report to the Legislature, as State Geologist, he so far modified his views as to be in doubt on the subject. Prof. R. C. Kedsie, of the State Agricultural College, at Lansing, asserted that the magnetism was only in the iron tubing, and instanced as a proof of this, a pipe which he had inserted in the ground to the depth of thirty feet, and which had become magnetic. This, however, is no new principle. Every school boy knows that any bar of iron, placed upright, will, after a time become magnetic.

That the water is strongly magnetic was shown where a wooden pipe, ten feet long, was placed between two lengths of iron pipe. The iron tubing, which the water

reached after passing through the wood, was as strongly charged as the first piece.

Whether the magnetism is derived from the pipe or its rocky bed, is a matter of dispute. Experiment proves that it is in the water. Knives held in the stream or rubbed upon the pipes become magnets. The time required to magnetize them varies greatly. Knives have been charged in two minutes. Sometimes, of five knives suspended in a bath tub over night, four will become strongly magnetic, while the fifth will be unaffected. If a compass be held near the running water, or near the pipe, the needle is deflected, more in the latter than in the former case.

Another curious property of the water is its coloring power. Superintendent Crow will show the visitor into a room in which stand goblets, glasses, bottles, tin-cups, salt-cellars, and the like, all under a shower of magnetic water. Five days suffice to color these in turn to a beautiful amber, seeming to saturate the glasses with pale gold. This is caused by the deposit of iron, and gives table ware a handsome appearance. Some cheap jewelry company, if alchemically inclined, might transmute the baser metals into gorgeous jewelry, and reap unbounded harvests on the principle of the "one almighty dollar." The color seems to be imperishable, and is beautiful as it is lasting.

### The Brain of Insane Persons.

In a paper read before the late meeting of the British Association of Science, by Dr. T. B. Tuke, the doctor said:—It is generally acknowledged that the intellectual powers are manifested through the grey matter of the cerebrum, and as in insanity these faculties were impaired, exaggerated, or perverted, the author asserted a belief that, by examining the brains of the insane a hope existed of discovering a road for arriving at a solution of the functional difficulty. The time had passed when the term mental disease, insanity, or madness, conveyed to the minds of physicians, the idea that the mind or its faculties, were the entities which were the subject of disease. By a process of reasoning the pathologist had arrived at the conclusion that abnormal physical manifestations are dependent upon primary or secondary changes in the nerve tissue; that insanity is a *symptom* of disease, not a disease itself, and that the cause of the disease must be looked for in the brain. Six years ago the author commenced a systematic microscopic examination of the brains of the insane and with this most important result, that in every single instance a marked departure from healthy structure was observed. The process by which the brain matter was made fit for the microscope was related, also a list of twelve different parts of that organ which had in the majority of cases been examined.

After describing the various forms of disease, which were illustrated by diagrams and microscopic sections, the paper concluded with the following statements: We are not prepared to designate the individual part of the brain specially affected in the different forms of insanity; but we may say generally, that the *corpora striata* are the portions most frequently found affected, and that the cerebellum is the organ least frequently subjected to disease. Further, that the white matter is much more liable to evident structural morbid change than the cortical substance in comparatively recent cases, and that where the intellect has been in abeyance for prolonged periods, the structure of the grey matter of the cerebral convolutions is difficult of demonstration, the layers are found indistinct, as the cells are few in number and generally small in size. In the fifty-three cases of chronic insanity which we have examined, we have found distinct structural changes in the brain of each. This in itself is a fact having a most important bearing on the physiology of the brain, and one which, if followed up, may be reasonably expected to dissipate much of the mystery which hangs over the functions of its various parts.

**SODIUM AS AN EXPLOSIVE.**—Recent experiments by European scientists show, that in the explosion of sodium, the force exerted is by no means small, as may be inferred from the fact that if 46 grms. of sodium and 18 grms. of water be confined in just the space required for their bulk, the gasses generated by their contact will be equal to 450 atmospheres or 6,800 pounds to the square inch.



## CORRESPONDENCE.

## SCHELL CREEK MINES.

Eoe. PRESS:—The trip from Hamilton to this place I will not describe, for the road is the same as every one has seen who has had occasion to travel in Nevada—a succession of mountain ranges and sagebrush plains. After 12 hours' ride from Hamilton, a distance of 75 miles, we arrived at Schellburn, the principal camp of the Schell Creek miners, situated at the western base of the mountains. The extensive adobe buildings of the old Overland Stage Co. are in a state of partial decay, giving the place the appearance of some deserted Spanish town. Schellburn contains at present three boarding houses, two groceries, one lodging house and three saloons. The population of the district is about 250, scattered over 20 miles of country.

Owing to the great extent of the Schell Creek mineral belt it is somewhat difficult to describe its geological character except in detail. The whole western base of the range to within a short distance of the main mineral belt, is evidently of volcanic origin, and consists of various species of trappean and basaltic rocks sometimes occurring in dikes but more frequently in masses. In many cases there has been an overflow of the molten matter ejected from these fissures and openings; this is evident from the fact that in places where the basaltic covering is worn away, patches of the underlying porphyry are exposed. Very little upheaval of the surrounding strata has attended the eruption of these trappean rocks; a marked change however has taken place in the sedimentary rocks for a long distance from their front point of contact, no evidence of their former character remaining, except the stratification. Another marked feature of the district is the occurrence of Magnesian lime in contact with the richest portions of the main mineral belt, and its absence along the poorer part. In the northern part of the district this lime (evidently belonging to the Silurian age) rests on granite, but as we go south along the east side of the range we find a thick bed of quartzite underlying the lime, and finally the shales and schists of the Cambrian Series underlying the quartzite. Some fine-looking, well defined lodes have been found in these lower stratified rocks and the indications are good for valuable mines. The main mineral belt follows the crest of the range for a distance of from 18 to 20 miles and can be easily traced with but two intervening breaks for the entire distance, but the rich mineral portion is confined to three quite limited localities known as the Northern mines, situated to the north of the overland road, the Queen Spring mines three miles south of the road, and the Ruby Hill mines eight miles further south. For convenience I will describe each locality separately.

## Northern Mines.

The formation containing the ledges in this part of the district is dolomite, overlying granite. The strata are nearly horizontal having a slight dip to the east of only about 8 degrees. The tilting of the strata here is evidently caused by the upheaval of the volcanic rocks on the west side of the range. The dolomite as far as I could discover is entirely destitute of organic remains, if they ever existed, intense metamorphic action has evidently obliterated all traces of them. The shale, in places overlying the main belt, is said to contain a few fossils, and some specimens shown me evidently belonged to the orthids.

The McMahon mine is situated near the cañon on the west side of the main range and is very conveniently located for cheap working. The vein or deposit is about 12 feet in thickness and can be traced on the surface for some distance north of the works. One-half of the vein is supposed to be pay ore, some of which is quite rich. A few tons worked at the Big Smoky Mill, Hamilton, yielded \$360 per ton, but probably the average of the paying part of the vein would not exceed \$60 per ton. The vein is wholly in the dolomite. The ore is copper glance, sulphide of silver and horn-silver. About 300 yards northeast of the McMahon, near the summit, is situated the

## Summit Mine.

This is an immense mass of croppings about 600 feet in length by 50 feet in thickness. It lies on the dolomite with a thin bed of shale underlying quartzite above it,

and has every appearance of being a contact vein and in fact the same may be said of the whole main belt, but in this formation, appearances are too deceptive for one to hazard an opinion. Much of the ore is rich; one ton worked at the Big Smoky Mill yielded \$390 per ton, but the value of the mine consists in the quantity of low grade ore exposed in the croppings. The ore is mostly a free sulphide of silver distributed very evenly through a quartzose gangue.

## The Woodburn

is situated to the south of the summit and is supposed to be an extension of the last named mine. The vein is about six feet thick and traceable on the surface for 200 feet. Like the McMahon it lies wholly in the dolomite and carries the same character of mineral; it differs from the main belt in being more cupriferous. The ore is very evenly distributed through the ore and is of good grade. To the north of this a vein called the Midas was discovered, carrying considerable gold. It made quite a stir at the time and every boulder in the vicinity was located, but I have heard nothing of it lately. There are many other locations in this part of the district, some of them showing favorably, but there is nothing done towards their development and we can form no estimate of their importance.

## Queen Springs.

This portion of the district is separated from the northern, by a hill of porphyry  $2\frac{1}{2}$  miles in length. This porphyry is traversed by dikes and masses of greenstone, but so far as known is entirely destitute of mineral-bearing lodes.

South of this hill across Queen Spring Cañon the dolomite again makes its appearance on the east side of the range, and with it the mineral belt. The dolomite in this part of the district dips to the west at an angle of 30 degrees and forms the foot wall of the vein, the hanging or western wall being quartzite. The croppings here are very large, varying from 50 to 150 feet in thickness, and the rich mineral portion has a length of about one mile. Rich chimneys of ore come to the surface in a number of places along these croppings and each of them have been located as a separate ledge, consequently some of the titles must conflict. The

## El Capitan and Silver Chariot,

are located at the north end of this belt on one immense mass of croppings standing from 20 to 30 feet above the surface, and 600 in length, by 50 feet in thickness. The largest part of the outcrop is rather poor in mineral. The Silver Chariot, however, shows well in horn silver and has worked \$188 per ton at the Big Smoky mill. The

## Sweepstakes,

next south, has a good prospect for a large body of fair milling ore.

## The Nutmeg,

situated near the south end of this belt is one of the most promising mines in this part of the district, and the owners though poor men are showing their faith in the value of the property by doing all they can to aid its development.

## The San Francisco

is situated to the east in the dolomite and shows the same character of ore as the corresponding mines in the northern part of the district. South of Queen Spring Hill the dolomite gradually loses its magnesian character, and passes into a dark stratified lime resembling shale in appearance, and the accompanying quartz belt becomes gradually poor in silver, until near Ruby Hill, eight miles south of the last named mines the true dolomite again makes its appearance and with it rich masses of silver ore. In this part of the district a mass of eruptive granite has divided the ledge into two veins, or two branches of the same vein, for more than one mile in length; one branch follows the dolomite along the east side of the granite and the other the west side. On this last branch are located the most prominent mines in this part of the district consisting in part of the following locations: Cow and Calf, Silver Wreath, Rambler's Luck, Lookout, and Rattler's Joy. These mines are considered the best in the district, and the large masses of high grade ore exposed in the croppings fully warrants the opinion. It is only a few weeks since the first discoveries were made in this part of the district, consequently the owners have had but little time to devote to the development of their property; but there is as much good ore in sight at present as White Pine could show under like circumstances. The ore in these ledges contains in addition to free sulphides, horn silver and ruby silver. Assays run high into the thousands, and considerable of the ore on the dumps

will certainly work well into the hundreds. Taking it altogether this is one of the most extensive mineral belts in Eastern Nevada as well as one of the most promising, but capital is required for the development of the mines, as well as the erecting of mills for the reduction of the ore. This is not a poor man's country any more than other silver mining regions, and it is to be hoped that no one will be deluded into joining the great army of restless spirits already in this State, who appear to be doomed like the Wandering Jew to keep forever marching on.

A. J. Brown.

Schellburn, Sept. 13th, 1871.

## A VISIT TO TREASURE HILL.

(Continued.)

BY OUR OWN TRAVELER.

The Eberhardt and Aurora Company's Tramway, Hodgsons' patent, built last year is 11,000 feet in length. The elevator above sea level at the top is 9,150 feet, and at Eberhardt City, the lower end, 7,150 feet. A 16-horse power engine at that place furnishes the power for passing the wire rope around the drum, the buckets passing up one line and down the other. The steel wire is suspended on posts, the highest of which is 130½ feet and the lowest 20 feet. They are built of strong timbers 10 inches thick, and braced and framed together stoutly. There are five stations on the line having an angle of 35°. The total cost of this tramway was \$80,000.

Since it was built they have had some trouble with slack wire, and Mr. Thairwall, the Tramway Co.'s agent, came from England in order to make such alteration as was deemed necessary. It was found that the difference in the elevation (2,000 feet) between the upper and lower ends was the cause of the expansion and contraction of the wire; it being much warmer at Eberhardt City than up on the hill. The tightening pulley was taken from the hill and placed below where the slack was. The expansion in the whole wire 11,000 feet long, and one inch in diameter, was 60 feet. The buckets carry 200 pounds each at a trip, and the ore can be loaded at the mills below for a cost of from 75 cents to \$1 per ton. On one occasion 300 tons were carried down in 24 hours. The tramway runs down the Mahogany Cañon and over a very rough precipitous ravine, and some of the posts are being raised so as to keep it as much as possible on a level. It is the largest one, I believe, in the United States, and must prove a remunerative investment, as in summer it costs \$3 per ton, and in winter from \$5 to \$7 for hauling ore in wagons from the mines to mills below. The curves, either sharp or of a large radius, are easily passed and it answers the purposes of a railway without the necessity of embankments, tunnels or bridges. There are three lines of telegraph wire running up the hill which they use for sending messages, instead of signaling as formerly.

## Eberhardt City

is a small place with but few stores and houses. Through the kindness of the manager I paid a visit to one of the large mills here. There are two very large engines, respectively 150 and 125-horse power, to drive the stamps, pans, settlers, etc. The fly wheels are 18 feet in diameter. There are six large boilers to furnish steam for the engine and pans. The mill has 60 stamps, 22 pans, 11 settlers and 3 agitators, and the proprietors claim that they can work the ore up within 90 per cent. of fire assay. Forty men are employed. The arrangements are very complete for doing the work, the pulp being taken from the batteries to the pans in cars, and C. P. Stanford's patent self-feeders are used and said to give satisfaction. The engine, etc., was built by Booth & Co., of San Francisco. The mill generally, under the superintendence of Mr. Geo. Attwood, is one of the finest I have seen on this coast. The

## South Aurora Co.'s Mill

has 30 stamps, weighing 750 pounds each, 16 pans, 8 settlers, and 4 agitators; they also use the self-feeders, and crush from 50 to 60 tons per day. All the ore for both these mills is brought down on the tramway spoken of above. Near the City of Hamilton are the

## Rothschild's Smelting Works,

which cost \$60,000. There are three

large stacks 8 feet square. A 40-horse power engine and one of Root's patent blowers at these works. The building is a stone one, 180 feet long, and 30 wide. These works are now idle. They were built by J. A. Mattison, who started to build a refinery in connection but before it was finished his creditors in San Francisco attached the mill, although when completed the furnace was fired up and turned out 207 tons of bullion. Evarts & Co. have bought all the hills and should they not be redeemed shortly this splendid property will all belong to them. This would be a splendid investment to any parties wanting to look into it, and no doubt would pay well. The district, I have every reason to believe, can furnish a sufficient quantity of base ore to keep the works in operation. One great drawback to Mr. M.'s operations, was from the fact that the miners would not let him have ore without an advance, because they knew him to be involved.

## Hamilton City

is the great center of all the mining region hereabouts. The high rates of freight now retard the progress of the town materially. It has, however, a bright future before it, as developments show that Treasure Hill instead of being a delusion and a snare, is rich, and likely to be worked for years. The English in particular are investing freely in this section, and furthering the business of mining generally.

Woodruff & Ennor the well-known stage men own a fine ranch in Pine Valley, not far from the Palisades on the road here, and have cut 300 tons of hay this year. This stage company furnish daily all kinds of fruit from California, which is in demand. The Mormons formerly had all this trade but the enterprise of these gentlemen has taken it from their hands and given the benefit to our State. Leaving Treasure Hill, I paid a visit to

## Shermantown,

which is very dull at present, and but two mills are running. The Oasis owned by an English company, is running on Ward Beecher ore. It has 10 stamps, 10 pans, and works 15 tons of ore a day. They use one of Blake's crushers, and have on hand 300 tons of ore.

## The Metropolitan Mill

is running on tailings and it is said that it will be removed to Eureka shortly, as some of the owners have bought mining interests in that district. The town has declined in property and many of the inhabitants are moving to Eberhardt City on the opposite side of Treasure Hill. An English company have bought the pipes in the streets and will bring the water to the latter place.

Six months ago two Germans located a mine about 1½ miles north of the White Pine smelting works. They have exposed the ledge for 275 feet and taken out 150 tons of ore. It is considered a true fissure vein, and the ore is of ample value to ship to England. The vein is now five feet wide. An extension has been taken up and both locations are likely to prove valuable. I had not the time to visit as many of the mines in this section as I desired and intended, but your readers can learn of the general progress of such as interest them particularly by referring to the mining summary, on another page.

W. H. M.

(Our correspondent sends us a sketch of the ore chamber in the Eberhardt and Aurora company's mine but it is omitted for want of space.)

COMFORTS FOR WORKING HORSES.—A Western genius, prompted either by philanthropy or pelf, has patented a cover for draught horses, or those exposed to long travel that ought to throw into an ecstasy of delight the benevolent Bergh of anti-cruelty fame. He traveled 1,500 miles to New York, to dispose of his patent, and his team promenaded Broadway for the inspection of the curious or to catch a buyer for his patent.

The Turf, Field and Farm speaks of another patented head cover for horses, raised on a whalebone frame, with a revolving wheel, that, rotated by the movement of the horse, is supposed to add comfort to a hard working horse. If so, here is another simple plan that has novelty, if not decided utility, in its operation.

RESPECTING PROPERTY.—Baron Rothschild owns 144 houses in Paris, valued at \$5,750,000, in some of which, it is said, not so much as a pane of glass was broken during the siege.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALAMEDA COUNTY.

**COAL FOUND.**—Oakland *News* Sept. 20th: A very fine specimen of coal was found on Monday in a prospecting tunnel which had been run into a hill on Pierce's rancho, near San Leandro. The piece was small but of excellent quality.

### ALPINE COUNTY.

**ENCOURAGING.**—Alpine *Chronicle*, Sept. 23d: Mining operations in this county are progressing very favorably.

**MONITOR MINER**, Sept. 23d: Fine ore was struck this week in the extreme lower level of the Schenectady mine.

### AMADOR COUNTY.

**THE KEYSTONE.**—Jackson *Ledger*, Sept. 30th: They are taking out the 20 stamps erected last year, and placing firmer foundations under them, and also adding 20 more stamps.

**THE AMADOR MINE.**—This mine is in complete working order for the first time in 18 months. One year ago last April the main shaft was burned out, and the time until the present has been devoted to repairing the shaft and putting up new hoisting works. In place of the old bucket plan they have a "cage" on which iron cars, capable of holding 1,800 lbs. of quartz, are run.

**NEW QUARTZ MILL.**—The Original M. Co., at Amador City, are now erecting a 40-stamp mill which will be completed soon. They have opened a new shaft from the 200 ft. level intended for the main rock shaft. Their mine is looking fine, with an abundance of excellent quartz in sight.

**THE MAXON.**—This mine is located a short distance south of Amador City. The shaft has been sunk to a depth of 200 ft. with a drift of 80 ft., showing a good ledge of rock. Some of the rock crushed, pays very satisfactorily. They have several hundred tons now on the dump.

**IN THE POTOSI MINE.**—Amador *Dispatch*, Sept. 30th: They have lately struck a 7 ft. ledge of good rock, which prospects well.

### CALAVERAS COUNTY.

**QUARTZ.**—Calaveras *Chronicle*, Sept. 30th: Hoercher, Siegler & Key, owners of the "San Bruno" mine near Mosquito Gulch, have out a large quantity of rock in readiness for crushing.

The "Good Hope" mine in the same district will soon be tapped, 160 ft. below the surface; by means of a tunnel.

Work is progressing favorably at the Petticoat. The shaft is sinking rapidly.

**PRUSSIAN HILL.**—Sixty tons of ore taken from the shaft, crushed in Randolph's mill yielded \$2,263, averaging a fraction less than \$40 per ton.

### INYO COUNTY.

**GOLD DISCOVERED.**—Inyo *Independent*, Sept. 23d: Mr. Anderson a week or two since accidentally discovered a ledge of gold ore, on Big Pine creek. Other parties located what is probably an extension and, work is going on in two places. So far as developed, it is extraordinarily rich, about 4 ft. in width, and with every indication of permanency.

### LOS ANGELES COUNTY.

**BULLION.**—Los Angeles *News*, Sept. 30th: 295 bars of silver lead bullion were received at the depot yesterday from the Union works Cerro Gordo. Aggregate weight, 24,944 lbs.; on the 28th the receipts from the same place were 69,989 lbs.

**RICH ORE.**—D. Hardard's train, from Arizona, on Sunday brought 15 tons of ore from the Tiger ledge, Bradshaw dist., of surpassing richness.

**ORE.**—Another lot of rich ore from Ivan pah (Clark district) was brought to town yesterday.

### MARIPOSA COUNTY.

**MINING JOBS.**—Mariposa *Gazette*, Sept. 29th: One of the richest strikes ever made in "Hite's mine," was made two weeks ago. The amount taken goes away up into the thousands. When the tunnel, commenced several years since, is finished, which will probably be next summer, this will probably be the most valuable mining property in California. The Little Pocket vein of Aelkema & Hart, at Sebastopol is still yielding big boulders, rich in gold. The "Francis mine," is bonded to an eastern company for \$11,000. Neal, Sneider & Graham have been working on Buckeye and have taken out a large quantity of rock which they intend crushing at Neal's mill. Wilcox made a clean up

of the batteries in his mill on Buckeye last Wednesday.

### SAN DIEGO COUNTY.

**MINING PURCHASES.**—A one-half interest in the McMechan mill and the Redmen mine, at Julian City, San Diego county, has been recently purchased by A. W. Whiting, of this city.

**F. R. Wilson**, the inventor of the steam stamp mill, which bears that name has bought three mines in San Felipe cañon, and will commence the erection of a mill upon the property as soon as the machinery can be got upon the ground.

## Nevada.

### EUREKA DISTRICT.

**BULLION.**—Eureka *Sentinel*, Sept. 30th: The Phoenix is turning out 4 tons of bullion per day.

**STARTED UP.**—The Richmond furnace started up yesterday, after a 3 days' stoppage to re-line.

**STRIKE.**—A valuable body of ore has been struck in the Windsail shaft, on the N. W. corner of the Buckeye, at a depth of 130 ft., that assays \$300 in silver, and \$12 in gold, with very little lead. In the new drift from the main shaft of the Buckeye, at 170 ft., a large body of yellow carbonate ore, from 6 to 8 ft. in thickness across the bottom, has been struck.

**ANOTHER STRIKE.**—A rich body of ore has been discovered in the Adams & Farnen mine.

**STOPPED.**—The Monte Cristo mill has shut down for the purpose of making needed improvements.

**SALE.**—Carson *Register*, Sept. 27th: The Gaslight and Excelsior mines in N. Y. Cañon, have been sold to an English Co. for \$40,000.

### ELY DISTRICT.

**SALE.**—Pioche *Record*, Sept. 30th: On Thursday the negotiations pending for the sale of the Monitor claim, were concluded. It was sold to G. Hurst for \$13,000, and the money was paid over on Friday.

### HUMBOLDT.

**BULLION SHIPMENT.**—Unionville *Silver State*, Sept. 30th: The amount shipped from the Arizona mine, since our last issue, was \$8,442.

**GOOD YIELD.**—The Eclipse M. Co. have received returns of assays made at the Auburn mill, Reno, which yielded from \$80 to over \$400 per ton.

The Henning mine continues to yield ore of a high grade. An assay of ore has been made which gave over \$1,800 to the ton.

**THE NEW FURNACE.**—The furnace built by the Arizonian Ass'n, will be started up early the coming week.

**MARIETTA MINE—CENTRAL DIST.**—The mine is yielding ore of a high grade. The vein is narrow, but widens as progress is made into the hill; length of tunnel 30 ft. Assays give from \$700 to \$1,000 per ton. Silver predominates.

**A SPLENDID SUCCESS.**—The Batavia and Pacific M. Co.'s mill, Relief Dist., is proving a complete success.

**NEW DISCOVERY.**—Humboldt *Register*, Sept. 30th: A large, well-defined ledge of silver bearing ore has been discovered on the western slope of Winnemucca Mt. It is also reported that a rich copper vein has been found a few miles from town.

### REESE RIVER.

**HEAVY SHIPMENT.**—Austin *Reveille*, Sept. 26th: The Manhattan Co. shipped to Battle Mt. to-day, 123 bars of bullion, weighing 11,467 lbs., valued at \$95,458.65.

**MOREY OAR.**—6½ tons of second-class ore from the Ogden mine worked at the Manhattan mill, yielded an average pulp assay of \$384.50.

**OUTSIDE ORE.**—The Manhattan Mill Co. received 21 tons of second-class ore from the Monitor mine at Belmont to-day, which will work from \$400 to \$500 per ton. J. P. Courter sent in 4 tons of \$250 ore from San Antonio Dist.

**NEW MINES.**—Major McClellan, and others, owners of the Sabrook mine, cut two ledges of good size and fair ore while sinking the shaft on their mine. They have put up an engine.

**THE ESTHER MINE.**—J. Reynolds is erecting hoisting works. There is an incline down 200 ft. on the ledge.

**PRUIN AND PULLEN.**—Capt. Schenck and M. J. Cahaley, have set up a donkey on this mine, and are taking out a splendid class of ore. The ledge is 2½ ft. wide and looks splendidly.

On the 22d, an unsuccessful attempt was made to fire the Boston mill.

### WASHOE.

**SINKING A NEW SHAFT.**—Virginia *Enterprise*, Sept. 27th: The new shaft of the Caledonia M. Co., 600 ft. east of their present working shaft, was yesterday down 61 ft. A contract has been let to sink the

shaft to 500 ft. At this depth a drift will be run west to the lead and a level opened 100 ft. below the present lowest level. The 400 ft. level is looking and yielding exceedingly well. The ore breast at the south end is between 4 and 5 sets of timbers in width.

**NEW OVERMAN SHAFT.**—The shaft is down 115 ft.

**NEW OPIER SHAFT.**—The shaft is down 1,070 ft.

**CHOLLAR-POTOSI.**—The Chollar Co. are taking out a daily average of 70 tons of ore which assays from \$35 to \$37 per ton. A great deal of prospecting is being done at the present time.

**SUTRO TUNNEL.**—The tunnel is now in 2,435 ft.

**THE BELCHER MINE.**—We yesterday conversed with gentlemen who visited the mine a day or two since and took samples of ore from various parts of the huge deposits now being explored on the 1,100 ft. level, and the result of the assays made from these samples is truly astonishing. The assay of a quantity of ore taken from all parts of the face of the deposit, from both the east and west sides of the vein, and, in fact from every part of the vein, shows \$432 and some cents per ton.

### WHITE PINE.

**BULLION SHIPPED.**—W. P. *News*, Sept. 30th: W. F. & Co., shipped to N. Y. 4 bars of bullion, weighing 225 lbs., valued at \$4,193.08. Also, from the South Aurora S. M. Co., to N. Y. 3 bars bullion, weighing 176 lbs., valued at \$3,302.41. Total shipments for the week foot up the sum of \$88,745.83.

**EEBERHARDT.**—Working 14 men underground, and in open cut, which is looking well.

**WARD BEECHER.**—Hoisting by steam from Phillpott's shaft. Piling ore on dumps and shipping to mill.

**NORTH AURORA.**—The ore in Lady's chamber has not diminished in quantity. Hoisting from Ridsdale shaft. Ridsdale chamber of North Aurora improves daily. A good deal of the ore assays well up in the hundreds.

**BEECHER CONSOLIDATED.**—Sinking incline.

**ARGYLE.**—Looking fair.

**SOUTH AURORA.**—Good headway is made in the tunnel. Contractors are putting the 3 underground shafts down rapidly. Asorting ore on dumps and shipping to Stanford Hill.

**SOUTH ICEBERG.**—An improvement has taken place in the quality of the ore.

**GREAT WESTERN.**—Lower shaft down 80 ft. Indications show that the vein will be reached by running 10 or 12 ft. The upper shaft will be sunk by contract; 25 ft. from the present depth (50 ft.), the spar vein on which this shaft has been put down is now about 2 ft. wide, and good ore some 4 inches thick joins the spar. Worm will progress day and night.

**SILVER WEDGE.**—Improved in quality and body of ore.

**ASHBURY G. & S. M. TUNNEL.**—This tunnel starts into the mountain below the Eberhardt mine, in Keystone Cañon. The Co. expects to develop rich and extensive mines in the direction the tunnel is running within a distance of 400 ft. from the starting point. The tunnel is already in 200 ft. A contract has been let to push it ahead 200 ft. more. Also a contract to run two side drifts of 100 ft. each.

**NOONDAY.**—Rich ore has been struck during the week, that assays as high as \$1,000 to the ton. Its extent has not yet been determined, but it gives promise of being a large deposit.

**HEMLOCK.**—Mine looking well.

**GLAZIER.**—Running from Slauson shaft, at a depth of 43 ft. from the surface. Drift running in good ore, and favorable for a large body of ore after running about 20 ft. ahead.

**SILVER PLATE.**—A batch of ore was worked this week that yielded \$120.15 per ton.

**TRENCH.**—Taking out about 3 tons of \$385 ore per day. The Monte Cristo mill will start up on ore from this mine the beginning of the coming week.

**BALD EAGLE.**—General appearance of the mine is good.

**PHILADELPHIA.**—Sinking and down 90 ft. finding chloride and horn silver; ledge 3 ft. wide.

**CAROLINE.**—Shipping ore from this mine for the purpose of reduction, at the Big Smoky furnace.

**OUTSIDE DIST.**—SCHELL CREEK.—The mines for a distance of 24 miles, carry the same character of mineral—sulphuret ore predominating. In last report, it was said that a 5 stamp mill would be put up at Ruby Hill, at an early day. The mill is now on the way to the mines, and will be running inside of 60 days.

**ROBINSON DIST.**—Good ore holds out in the Osborne mine, in the 70 ft. level.

**MILLS—INTERNATIONAL.**—Running 60 stamps on ore from North Aurora and Ward Beecher mines.

**OASIS.**—Shut down on account of cam shaft breaking.

**SWANSEA.**—Running on custom rock.

**MANHATTAN.**—Running on Ward Beecher Consolidated. Crushing 30 tons per day.

**STANFORD.**—Running on South Aurora rock.

**BIG SMOKY.**—Running on Hidden Treasure and Company rock.

## Colorado.

**SHIPPED.**—Central *Herald*, Sept. 27: Palmer & Nichols shipped on Saturday a silver bar weighing 1,516 80-100 ozs., 852 fine. Coin value \$1,670 90-100. They ship a similar bar to-day and another of equal value Wednesday.

**GRAND ISLAND.**—Peawarmer lode, Cariboo, has been bonded for \$10,000, and 750 ft. of Hidden Treasure for a like sum. Parties are looking about the district with a view of purchasing mines.

**PELION.**—One thousand dollars per day for the last 40 days, has been obtained by sinking and running levels without stopping. The 3 shafts are 160, 120 and 80 feet respectively, and 4 levels have been driven.

**POTTER'S** two mills, Clayton's, the Philadelphia, and the stamps at Waterman's mill are running. The others have stopped for repairs, and one for lack of ore.

**Mr. Kline** has put up a whim on Hill & Co.'s claim, Fairfield lode, in Russell Dist. and is raising first-class ore.

**C. Bacon** has let the Mazeppa mine. This lead is paying well.

**MISSOURI** Cross lead is yielding smelting and mill ore. Shaft down 100 ft.

On the Kansas lead D. H. Andrews, at 100 ft., is gradually coming into pay. Southworth's claim is a big thing, and the new steam engine is now ready for hoisting. The Lyon claim is not paying as well as formerly, being pinched at the bottom of the shaft.

An Arey furnace is being erected by the Boston Co. at their works near Montezuma, for treating their silver ores.

At Gilson Gulch the Santa Fé lode is worked with profit. Gilson & Wright's has been yielding \$150 per ton in silver.

**CUTTER'S** reduction works at Dayton are progressing rapidly.

More lead mining is going on near Idaho than at any previous time. Fifty hands are employed in the Seaton, Queen, Crystal and Santa Fé mines. Womach & Deau are raising large quantities of rich silver quartz from the Seaton. The Crystal is developing into a first-class mine, and the Queen is proving very profitable. Negotiations for the purchase of the Seaton are going on in England.

**MEAD'S** mills on North Clear Creek, were stopped for repairs. Salisbury was running but a portion of his mill, while the Western Smelting works were stopped for machinery.

**KEARTING & Co's** furnace near Cariboo will be at work soon.

Some lode ore worked near Cockaday's ranch, Grand Island dist., assays from 40 to 120 oz of silver per ton.

Lake and Kimbers & Buffington's mills are running steadily. The latter has 32 stamps employed on California, 12 stamps on Gunnell, Kansas and other custom ores.

**Borum & Miller's** Empire mill is pounding away. Ten stamps are crushing Leavett ore yielding 5 oz. to the ton, but improving. The remaining 10 stamps are at work on Gregory Second quartz.

**T. Sanders** is running the Fitzpatrick mill at Black Hawk, on quartz from the Narragansett Co.'s claim No. 11 on the Gregory lode, but ready for custom crushing.

**Sanders, W. Robbins, and F. Kruse** are working the Narragansett and taking out ore from a depth of 100 ft.

**Cave & Mellor** are sinking on their claim of the Gregory Second. Lindsley & Co. have again resumed work, and Davis & Co. are also operating near by on this same lead.

**NEVADA.**—The Gunnell is extensively worked. Two engines, one whim and two windlasses are hoisting on the claims, and the rock raised seems to be of good quality, and to carry a fair percentage of first class ore.

The Sendenberg is turning out a good lot of mill ore. Below the Sendenberg, there is good looking mill ore being raised from the Prize.

Topping, on the Slaughter House, is raising considerable rock.

Active operations on the California have been suspended on account of negotiation with English parties desirous of purchasing this property.

**CLEAR CREEK CO.**—Cor. same, says: The



omery street, corner of Pine.



### California Chemical Paint Company.

TO THE CALIFORNIA CHEMICAL PAINT COMPANY, MANUFACTURERS OF D. R. AVERILL'S PATENT CHEMICAL PAINT.—*Gentlemen:* In compliance with your request I herewith submit for your consideration the following report of analyses of samples of D. R. Averill's Chemical Paint in its natural state, as manufactured by you in San Francisco, corner of 4th and Townsend Sts.; also report on samples of boards, painted with said patent paint, which you submitted for a series of comparative tests to be made with samples of boards painted by the best lead paints that could be procured in this city.

The comparative results of tests on these painted boards by the action of steam heat, sulphurous gases, alcohol, alkalis and acids prove that this Chemical Paint is *unrivalled*. The perusal of the following synopsis of its chemical nature and merits of composition as a paint will prove the above assertion, and that said paint must be considered a new and superior article. This testimony is also corroborated by the able reports on the subject by Professor C. F. Chandler, T. Lang Cassele, B. Hedrick and others to whom I am largely indebted and who unanimously consider the invention of D. R. Averill, one of the most valuable and scientific known to the arts.

It is true that any new invention or bold application of new principles will have its detractors, so it is in this instance; but the fallacious assertions that this paint is only a *mixture of benzine and water* is too tame for refutation. The reading of the following will convince the most skeptical that D. R. Averill's Chemical Composition as manufactured by you, possesses all the requirements and qualifications of the most perfect oil paints, and that its merits are superior to any other paints.

Use and Application of Water Glass or Silicate of Soda—Averill's Patent Chemical Paints.

Some twenty years ago Dr. Fuch, of Munich, discovered a method of painting which he called *stereochromy*.

The want of a vehicle more enduring than those formerly in use, and less liable to injure colors employed, led to this discovery. Dr. Fuch's method, which consists in the use of soluble silicates as the fixing material has been applied with considerable success in Europe, by German and French artists of distinction, in England by W. Herbert in the House of Parliament, and in the Fresco painting in the Capitol at Washington, U. S. The adoption of decorative and ornamental painting for the embellishment of public and private buildings has rendered necessary some changes in the older processes of painting, because the requirements are different. Outside and wall paintings are more exposed to destructive influences than that on panel and canvass. The wall itself is more absorbent; the accumulation of dirt, which has from time to time to be removed; the impossibility of giving the same care to its preservation as to objects of smaller size which are movable—render the employment of a different method of painting necessary; and one which will leave it in such a state, that it may, so to speak, take care of itself, and be independent of any further attention.

Silicate or silicious painting seems to supply all that is wanted for *beauty and stability*. It makes the surface of the wall almost impervious to moisture; it fixes the colors firmly to the ground and is easy of application. But the process discovered by Dr. Fuch seems incomplete and open to some grave objections, although the principle on which it rests is sound. The above remarks are not intended to disparage Dr. Fuch's discovery which is in truth one of the most important to art ever made. To this modest and great man all who are interested in the advancement of art owe a deep debt of gratitude for his persevering labors; pursued for many years amidst much discouragement and many difficulties. Those who read his treatise on *stereochromy* cannot but feel delighted with the earnestness and singleness of purpose with which he labored to attain the high end which he set before him. He thus concludes the account of his investigations:—"But before all, I thank God, who graciously allowed his weak and aged servant to finish the preceding investigations so far, that others may build upon the foundation that I have laid." He evidently saw that much remained to be done to perfect the process which he had originated. The honor to have brought this invention to perfection belongs therefore to D. R. Averill,

who, if he has not found the philosopher's stone, has at least produced a *paint* worthy of a philosopher, and which promises to become the paint of the age. Although five years are not five centuries, chemistry has analyzed even the tooth of time, and can produce within the period of a comparatively brief experiment, results identical with those of the ages of atmospheric corrosion and disintegration.

Samples of Averill's Chemical Paint, have been boiled, heated, frozen and pickled in alkalis and acids; and fumigated with foul gases. It has been boiled and then immediately placed on ice so as to freeze whatever water might have been absorbed, and it has also been heated and then plunged into ice water, but without any sign of cracking or softening, superficially or otherwise. No other paint could stand these tests. The *durability* of Averill's Chemical Paint does not rest alone upon such evidence as this, for it is of the simplest chemical composition. Chemistry testifies to the durability, if not the indestructibility of a material which is *nearly silica*, like flint, and is consequently, unalterable in air; and as this new paint is almost impermeable, it will suffer little if any injury from moisture or frost. We may then, as the lawyers say, "admit" the durability, and if further evidences are necessary, the many applications of this paint made in this State during the last two years is sufficient to show that it is a true and permanent paint for either outside or inside application. Previous to Averill's invention paints were only mechanical mixtures consisting of:

1. *Pigments*—Such as carbonate of lead; oxide of zinc; lamp-black; ochres, raw or burnt, etc., purchased by the painter from the manufacturer. These pigments are generally dry or ground with a small quantity of linseed oil.

2. *Oils*—Generally boiled linseed or poppy oil.

3. *Diluting or Thinning Agent*—Spirits of turpentine, which has been replaced within a few years to a greater or less extent by benzine, a light naphtha derived from petroleum.

4. *Varnishes*—To give a gloss, copal resin or shellac dissolved in turpentine, linseed oil, benzine, alcohol or a mixture of some of them.

5. *Driers or Siccatives*—Metallic oxides or salts either previously boiled in the oil or added by the painter in mixing.

The disadvantage of paints prepared as above described are:

1. That in the ordinary oil paint formed by the grinding of metallic oxides or carbonates, there is no substantial union between the oil and the metallic pigments employed.

2. Paint thus prepared would not keep, it must be used at once; any portion which might be left over would spoil in a few days, the heavy pigment settling to the bottom of the vessel and becoming more or less hard, while the oil becomes thick and soapy or stringy in its consistency. After paint has passed to this condition, it is no longer possible, even by the process of grinding, to reduce it to a uniform and smooth consistency.

3. Ordinary oil paint, when exposed to the action of the atmosphere, after a certain time the pigment becomes loose or detached from the oil, rendering the surface chalky, especially when the pigments contain a large proportion of *barytes*, which, properly speaking, forms no union with the oil.

The Averill Chemical Paint, although an oil paint, is not liable to these objections; it can be prepared ready for use in large quantities at the manufactory, sent to any distance or kept any length of time, without change. Put up in barrels or other convenient packages it may be drawn from time to time for use in convenient quantities and such portion as may not be consumed may be returned to the package for future use. Any person who can handle a brush becomes a painter for the time being:—"Why?"

Because the Averill Chemical Paint is in a permanent *liquid* form, a result obtained by the use of the following chemicals: acetate of lead; sulphate of zinc; hydrate of calcium, and silicate of soda, in addition to the pigments, oxide of zinc, the oleaginous substance, boiled linseed oil, and the thinning or diluting agent, benzine, manufactured especially for this paint, and which cannot be replaced by the ordinary benzine now in common use which destroys rather than benefits any paint. The combination of these chemicals are:—

1. Their action upon the oil, producing with it an "emulsion" or intimate mixture of oil and water solution from which the oil cannot separate on standing, and from which the pigment cannot separate as sediment.

The alkaline constituents in this paint, viz.: hydrated calcium, and silica of soda, are not present in sufficient quantity or of the proper concentration to effect a true saponification of the oil, as by analysis the oil is recovered *unchanged* which could not be the fact had it been subjected to saponification.

2. The action of these chemicals upon each other produces more or less of a gelatinous substance which, added to the viscosity of the oleaginous mixture and its peculiar combination, renders the mass homogenous and uniform in consistency, and chemical and mechanical effect. The compound paint resulting in a body so uniform and permanent, that practically, there is no separation possible in its constituent ingredients.

3. The effect of soluble silicate of soda (water glass) in this paint, made of boiled linseed oil and metallic salts of lead and zinc (acetate of zinc and sulphate of lead,) is to render the paint, as already stated, more viscid or glutinous, a property so important as to prevent the separation of the solid parts of the paint, which happens with paints mixed in the old way.

4. The value of this paint, aside from its *permanency of liquid*, consists in its affording a means of protection to wood and other surfaces against the action of the elements.

5. By the presence of a gelatinous silica and the alkaline ingredients, combined with the oil, this paint forms as has been proved by experience, a coating comparatively fireproof.

6. It is also remarkable for its elasticity, possessing the important and peculiar advantage of not breaking up into chip cracks, consequent upon the oxidation of the oil; its surface therefore remains smooth and uniform after long exposure. The brilliant gloss or polish, due to the manner of its composition, is another feature over ordinary oil paint, in which a gloss can only be obtained through damar or other resinous varnish.

7. It seems strange that year after year persons should go on painting their residences with a material like white lead, which every one knows changes color from the action of sulphur gases which are always present in the atmosphere; whereas the basis of Averill's paint being zinc, there is no liability of discoloration by these gases. It is free from the poisonous effect of lead paint (painter's colic), and by virtue of the peculiarity of its constitution it can be washed with soap or alkaline water with a freedom which would be destructive to ordinary oil paints.

8. The value is not dependent wholly, as in the case of oil paints, upon its hardening on exposure to the atmosphere by the evaporation of its volatile constituents, and the solidification of the oil under the influence of the atmosphere; but it is already in such a condition of firm chemical and mechanical union, that when a surface freshly covered therewith is drenched immediately after it is put on, by a shower of rain, it is not washed or furrowed by the water as is the case with ordinary oil paint.

9. The universal adaptability makes it the most perfect substance known, and this invention is one of the most valuable and scientific known to the arts.

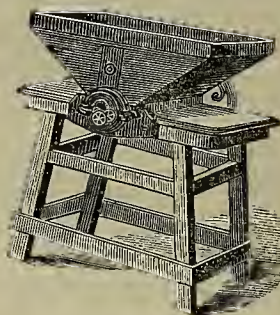
Although the use of soluble water glass in painting was quite suggestive in its new application, still a proper combination was required to avoid the quick drying which results when oxide of zinc is ground with silicate of soda, due also to the etate of concentration of said solution of water glass, which is a matter of considerable importance in this paint. In its practical application, it required a combination of oil with other ingredients to form not a mere mechanical mixture; which, on standing for more or less time would separate, and on being applied to wood, metals, or stone would fade or chalk off. Such a combination as to obtain a product meeting all the requirements of a perfect paint; durability, readiness of application, universal adaptability, retention of colors, special qualification of covering and easy to spread, perfect adhesiveness, resistance to water, and preservation of wood and stone, was the aim of the inventor. It has proven a real commercial article which will, from its chemical nature, prove more durable than oil paints. It does not blacken by exposure to sulphurous vapors, dries quickly, resists dampness and the action of water, can be cleansed with boiling water and soap, and preserves the wood from decay rendering it at the same time *incombustible* instead of increasing the danger from fire as is the case with oil paints. I am confident of its ultimately superseding the use of all other paints for external or internal application either on stone, wood or metals.

L. LANSZWEERT, Analytical Chemist.

### The "Challenge" Feed Mill.

Feed that is ground is always more beneficial to animals than that which is fed whole, and it is said that at least 33 per cent. is gained by using the former. Grain gathered after it has become ripe and all the moisture has ceased to circulate, then allowed to become further hardened and dried by age, cannot but be benefited by some grinding process which softens and renders it easy of mastication. No wonder horses teeth wear out since they are forced to uses which will wear down the hardness of stone. They were only intended to crush the juicy herbage of the field.

Any apparatus which will secure all the nutritious properties of the grain, and at the same time render it easy of mastication, is to be desired. The Challenge mill is specially adapted for this purpose, as well as for grinding other materials. The manufactory of these mills is at Batavia, Ill., and four sizes are made. There are three varieties of what is called the medium mill, costing respectively, \$75, \$85, and \$90. The grinding capacity and finish of these mills are the same; the difference in price does not indicate superior quality, but is caused merely by the style of the working gear. The Warehouse mill is capable of grinding feed in large quantities and the



The "Challenge" Feed Mill.

humidity of the grain makes no difference.

By the use of these machines the farmer is independent of the mill, being able to grind his feed at home with such power as he can command, either horse, wind, water or steam. By the use of a sieve all the meal required for family use can also be ground. Their portability and compactness render them unusually convenient, and the capacity is very large in proportion to the size. The principal advantage of these mills, over any similar appliances, are: cheapness of operation; no heating of grain; amount ground with one set of grindere; facility of adjustment to any kind of power; simplicity of construction, and cheapness in cost. They are adapted to grinding malt, rice, salt, flax-seed, sugar, pepper, spices, ginger, and roots of all kinds. The company guarantee that if adjusted to a one-horse power, any of these mills will grind five bushels of grain per hour, and five more bushels for each additional horse power up to four. They also manufacture power mills for breaking, cleaning and grinding cotton seed; hand mills for family use, and hand and tread powers of all capacities. The accompanying engraving is a representation of the Warehouse mill. These mills are for sale by Hawley & Co., corner California and Battery streets, and dealers generally, here and throughout the country.

**MISSING PEOPLE.**—Whenever an unknown corpse is exhibited for identification at the morgue, in New York, the very great number of persons who call to ascertain if it be the one missing from their own home, or circle, reveals a state of fearful insecurity. It makes clear the fact, that, at all times, in that city, there are hundreds of missing people, victims to accident, to their own or to the sins of others.

How many every day mourn some lost one, and though tortured by the mysterious absence, yet grieve in silence, fearful of what a revelation of its cause might disclose. The fate of how many victims never come to light, deep buried beneath the sod, or anchored to the bottom of the deep.

Accidents, violence, treachery, the dread of exposure and of shame, all these causes conspire to swell the number of the missing.



Useful Information.

All Metals Yield Pigments of Some Kind.

Mercury produces vermilion. Venetian red, mars orange, and yellow and Indian red are produced from iron. Copper gives us emerald green and verdigris. Chromium affords oxide of chromium and chrome yellow. King's yellow and orpiment are made from arsenic. Cobalt blue and smalt from the metal cobalt. Zinc supplies zinc white. Lead supplies white lead, Kren's white flake white, china white, patent yellow, red lead and orange mineral.

Among the colors extracted from animal matter, those distinguished by the brilliant hues imparted through the agency of Prussic acid, are most remarkable. This peculiar acid is produced by the calcination of dried blood, and the hoofs and horny parts of animals, and, in conjunction with iron, affords those beautiful and powerful blues known as Prussian and Antwerp blue. Gall stone and Indian yellow are the products of animal economy, and the cochineal insect, by a particular treatment and great delicacy in manipulation, is made to yield the most powerful and beautiful crimson known, namely: the carmine and the crimson lakes. Scarlet and purple lakes are also made from the same by varying the mode of manufacture.

Vegetable colors, from the want of permanency, are mostly rejected by the color maker. Among the few that are retained, the madder root holds the most conspicuous place. The indigo plant and gamboge also afford useful colors in the fine arts. Among the vegetable colors we must class Frankfort black, and that most important pigment, lamp black.

From this brief review, it would seem that all the kingdom of the material world and all quarters of the globe, are laid under contribution to supply to the painter his stock of colors.

**THE BLOODHOUND**—Is not a very interesting or valuable species of canines. Its origin was probably the Talbot hound—produced by selection and care in breeding. The bloodhound is tall, strong—but if pure, never exceeds twenty-eight inches in height at the shoulder; ears long and pendulous; color, if pure, tan, or black and tan; any white indicates impurity; jaw deep; air majestic and solemn; vertex of the head protuberant, and the protuberance indicates high breeding.

Richardson says that this hound does not injure the object of his pursuit but traces him to his hiding place, and then by his loud baying indicates his position. Wonderful stories are told of the acuteness of his scent, even when the object of search has entered the town and traversed streets that hundreds of other persons have more recently trodden; and it is asserted that the only means of escaping his unerring scent is by crossing water or spilling blood on the track. The latter practice destroys the discriminating fineness of the scent. We have also heard persons who have tried it assert that smearing the shoes with onion juice also distracted them.

**TO MAKE COURT PLASTER**—Soak isinglass in a little warm water forty-four hours; then evaporate nearly all the water by a gentle heat, dissolve the residue in a little proof spirits of wine, and strain the whole through a piece of open linen. The strained mass should be a stiff jelly when cool. Now, extend a piece of silk on a wooden frame and fix it tight with tacks and packthread. Melt the jelly, and apply it to the silk thinly and evenly with a hair brush. A second coating must be applied when the first has dried. When both are dry, cover the whole surface with two or three coatings of Balsam of Peru, applied in the same way. Plaster thus made is very pliable, and never breaks.

**CULTIVATING SPONGES**—The French and Austrian governments have begun to raise sponges artificially; the former on the shores of the Mediterranean, and the latter on the coast of Dalmatia and the cultivation said to be perfectly successful and very profitable.

It has recently been discovered in France that splendid blotting and wound-dressing paper can be manufactured out of sponge. The sponge is reduced to an impalpable pulp by grinding, and is then made into paper by the usual process. The discovery is secured by a patent, and will prove valuable, as the paper thus made is indispensable in dressing wounds.

Good Health.

Wearing Glasses.

Some physicians have advised that people should never put on glasses for reading or writing, but continue persistently to read and write without them, by which, it is claimed, by such advisers, the eye will regain its former power.

The fact is that the eyes of some are probably susceptible to such a change—a renewal, or as it is sometimes called a “second sight”—but it is only the empiric who is absolute and final in his decision. The legitimate, thinking professional makes experiments and arrives carefully and cautiously at results, which he finds vary with different constitutions and diverse physical developments.

In the use and non-use of glasses, much depends upon the individual case. Experience teaches that what will help one will not help another under precisely similar circumstances.

Studious habits, overwork, greatly taxing the eyes to perform severe and continuous duties, are common causes of their early failing. The introduction of the art of printing and the general habit of much reading is doing considerable toward a general increase of weak eyes, over what formerly existed; but the idea of relying on time, as a general thing, for its restoration, is utterly inadmissible, in view of the numerous careful experiments which have been made.

**ASTHMA INCURABLE**—Asthma is an incurable disease by human agencies. An attack can be modified or shortened, and this is all that the thousand and one vaunted remedies for the “cure” of asthma can do; they alleviate or remove for the time, nothing more. Sometimes the disease lies dormant for months or years, only to re-appear in some change of life, or more terrible form of human affliction. In some cases it disappears in childhood, to show itself again after forty years. Children sometimes “outgrow it.” If it disappears at the “change of life,” it may not be heard of again, but that life will seldom reach three-score and ten.

It is very certain that persons troubled with asthma may be exempt from it for a succession of years, and even for life, by removing to a different atmosphere or a different climate; hence, instead of losing time in the attempt to “cure” asthma, or of being satisfied with shortening or curing merely an attack of it, it would be a wiser course to change localities or climate.

**BLEEDING FROM THE NOSE**—“What is the cause of bleeding at the nose? How can it be prevented or stopped?”

This occurs most frequently about the period of puberty, when there is usually a greater tendency to plethora than at other times. It can be prevented by keeping the depurating organs, the skin, bowels, and kidneys, in an active condition, by plenty of exercise, and by guarding against eating more than the system requires. It can usually be stopped by bathing the nose in cold water, and snuffing cold water up the nostrils. Care should be taken to keep the head well elevated. In connection with this, a hot foot bath is useful. In severe cases, the nostrils may be plugged with lint, or a soft sponge. When the hemorrhage is from the front part of the nasal passages, firm pressure with the thumb and finger will generally stop the flow.—*Heath and Home.*

SUNKEN CHEEKS—WHAT CAUSES THEM?

There are many causes which tend to produce hollow, wasted and sunken cheeks, the chief of which is dyspepsia, or any form of disturbance of the digestive organs. The use of tobacco is among the most fertile causes of dyspepsia. The too free use of pepper and other spices, vinegar, greasy food, sugar in excess, greatly damage digestion and make the skin dry and leathery, the face angular and the cheeks sunken.

DEATH FROM THE STING OF A HORNET.

A woman died in Algonquin, Ill., recently, from the effect of a sting from a black-and-white hornet.

Fruit at the State Fair.

An old pioneer at our State Fairs, Mr. D. L. Perkins, of Emmaton, Sherman Island, gives us the following brief notice of the fruit department at the late exhibition.

Eastern Fruits.

Your servant being one of the committee in this department, submits the following: In passing our judgment upon the fruit that was exhibited from the East, I find that from my notes that

The Pears

differed a great deal both in size and flavor from the different localities. Take for instance, the Swans Orange, in seven different States there was scarcely a difference; they were uniformly good, while scarcely any two out of other varieties were alike. The finest pears were those from New York. Taking into consideration the fruit of this class grown in California and the East, the fruit is far superior here in size and flavor, though allowances should be made for the locality, and the time of gathering them to be exhibited here.

Apples.

The finest display of this class of fruit came from Nebraska and Kansas. From the first named State the exhibit was very fine, the fruit was unusually large and highly colored. This collection was admired by every one that had the pleasure of seeing it. As regards the exhibit from other States, they were small and grown in a colder locality.

Corn.

Some very fine specimens of Dent corn were exhibited by several of the Western States.

Fruits.

I am sorry that I am compelled to remark that a large portion of the fruit, that came from the East was decreased. It is unfortunate because in this State we are entirely free from any of those insects but care has been taken to have all the fruit, that was left after the Fair destroyed. Great credit is due to our eastern friends, in sending the fruit, as persons could thus judge of the difference between the East and the far West.

Our Own Fruit Exhibit.

Perhaps at no time since the organization of the State Agricultural Society has there been so large and choice a display of fruit as has just taken place in this State, and that too of such a fine quality. There being but few premiums, the contest was very close. The large collection from Mr. J. R. Nickerson, of Lincoln, surpassed all of his former displays, embracing some 400 varieties of all kinds of fruits and vines. Mr. Shaw of Sonoma, Brumlor of Placerville, Carpenter of Diamond Springs, Garrett of Placerville, with many others, deserve especial notice for their fine displays.

The Display of Grapes

was the finest that I have ever seen in the State, and embraced many new and choice varieties. This branch of the fruit exhibition, seemed to be highly appreciated by our eastern visitors. Taking the entire exhibition this year, with the fruit, it far excelled all which have preceded.

I shall have about 50 varieties of the choicest fruit, cast in wax by a competent person, to be placed on exhibition at the next State Fair, so that we may see if any improvements are being made.

Wines.

The display this year was the largest made by fruit-growers that I have ever seen, and much of it was of a very fair quality; there was also much competition and all parties seemed well pleased with their awards.

In Conclusion

I will say that during the 15 years past, that I have been connected with fairs, I must say that I have never seen one so well conducted as this has been. The Board of Managers as well as the different clerks all seemed to do all that they could to make the contributors at home. Not a jar or a word of ill feeling did I hear or see, and when the awards were announced all seemed to be well pleased with the result.

THERE are fourteen Americans studying at the University of Leipsic, and sixty-three at Berlin.

The Harvest is Over.

The gathering of the crops is about over, and the farmers are in the midst of the harvest holidays. Stock-growers are trotting out their best cattle, colts, sheep, pigs and poultry. How sleek they look, notwithstanding the dry season and the parched and unsightly appearance of the country! Improved mowers, reapers, threshers, plows; big pumpkins, squashes, potatoes, beets, and the very best of all other kinds of farm produce, are sent to the various fairs for exhibition. How much everything is admired by the throngs of men, women and children who go to the “show,” and what crowds of people go there!

Paradoxical as it may seem, it is nevertheless true, so far, that though we have had a season of unusual depression, in every department of business, there never has been a year of such great success in our usual fall exhibitions. The show has been unusually fine, the attendance has been large, and the receipts have exceeded all former occasions—all of which is truly gratifying and indicative of the indomitable perseverance of our people, who are never discouraged at temporal hindrances, but rather make them the occasion of putting forth unwonted energy and determination. Such a people can never fail. It is just such that are needed to build up new empires of business and of thought.

Well, after so much hard work it is but meet and proper that our farmers should have a “play-spell”—a short period of rest, of enjoyment, and of recreation and observation. It always does people good to come together and compare notes and cultivate the social relations. It is by just such exhibitions as we are now enjoying, all through the country, that each individual of twenty or a hundred, engaged in the same pursuit, may possess himself of what the others have gained during the past year. It is not simply that one may learn of another; but that each may learn of all. Such gatherings will do us all good, and in a thousand ways. Would that they could be made even more general than they are. Intelligence would thereby much more increase, and mankind make better progress. Does the world shine on a better, happier or more intelligent or progressive people than are to be found on this Pacific Coast? If so, where?

**NITRO-GLYCERINE** does not seem to become any more civilized as it mixes in scientific society. We read, in a German publication, an extraordinary account of the explosion of only ten drops of this substance, which a pupil in a laboratory had put in a cast iron saucepan, and heated with a Bunsen gas flame. The effect of this explosion was that the forty-six panes of glass of the windows of the laboratory were smashed to atoms, the saucepan was hurled through a brick wall, the stout iron stand on which the vessel had been placed was partly split, partly spirally twisted, and the tube of the Bunsen burner was split and flattened outward. Fortunately none of the three persons present in the laboratory at the time were hurt. When nitro-glycerine is caused to fall drop by drop on a thoroughly red-hot iron plate, it burns off as gunpowder would do under the same conditions; but if the iron be not red-hot, but yet hot enough to cause the nitro-glycerine to boil suddenly, an explosion takes place.—*Scientific American.*

A new invention consisting of a machine combining the advantages of an alarm pump, fire engine and ship's pump, was recently tested at Dover, N. H., and is said to have given great satisfaction to a number of interested gentlemen present at the trial. The signals are made by means of a whistle, blown by compressed air in the pump, and this whistle, under ordinary circumstances, can be heard three miles. The signals for fog, pilot, distress, for course, etc., consist of long, medium and short blasts, according to the key furnished, and by a similar process a telegraphic alphabet can be used for communication. By changing the action of the machine, water may be pumped from the ship, or into the ship to extinguish fire. The entire apparatus is in very small compass, is very simple, and with all its arrangements cost but \$150.



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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### San Francisco:

Saturday Morning, Oct 7, 1871.

### Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, October 4, 1871.—Legal Tenders buying 88; selling, 88½. Gold in New York to-day, 114½.

### Table of Contents.

PORTABLE ENGINE—III.; Land Decision; An Alleged Wrong Among Miners.....	209
MECHANICAL PROGRESS.—Water Pressure Engines; Management of Belts; Grinding Wheat Without Millstones; New Indicating Instrument.....	210
SCIENTIFIC PROGRESS.—The Triumph of Science; Magnetic Wells; The Brain of an Insane Person.....	210
Schell Creek Mines; A Visit to Treasure Hill, Nev.....	211
MINING SUMMARY.—Stock Market etc.....	212-13
California Chemical Paint Co.; Challenge Feed Mill.....	214
USEFUL INFORMATION.—Good Health; Fruit at the State Fair; The Harvest Over.....	215
On the Assay of Gold; Propeller Engines in 1804; Answer to Correspondents.....	216
Explosion of Torpedoes—III.; Mill Machinery Manufacture—III.; Patents and Inventions; Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.....	218
Academy of Sciences; Merced Cotton Experiment; Rain, etc.....	220

### Notices to Correspondents.

A. E. M. writes as follows: Suppose a gun he charged with 2 ozs. of shot and sufficient powder to give a recoil equal to 80 lbs.; then vent the piece and charge with same quantity of shot, adding enough powder to give the same recoil as before vented; which will give the deepest penetration before or after venting?

Our opinion is that there will be no appreciable difference in the penetration, as far as the vent is concerned, for the reason that it is only put into guns in order to render them more easy to load by permitting the condensed air to escape. Such was the old idea, but no guns are made with vents at the present day, although in some of Westley Richard's guns there is an artificial one which does not pass through the breech as it appears to. As to "adding enough powder to give the same recoil" we would say that the recoil does not depend so much on the amount of powder as on the amount of shot. The reason of this is, that the powder has to overcome the *vis inertiae* of the shot, and the more shot there is, and the tighter it is rammed, the more the gun will "kick," as every sportsman knows.

NEW SILVER DISCOVERIES are reported near the South fork of King's river, about fifty miles north-east of Visalia and near the base of Mount Whitney. According to the *Bakersfield Courier*, the beds are large and well located for mining operations. The discovery was made by a party of prospectors from Visalia, who brought back rich specimens of silver ore as evidence of the value of their discoveries.

GRAPES, for wine-making, are selling this year, in Los Angeles, at one dollar per hundred pounds; against seventy-five cents last year.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

The weight of the button being carefully noted, pure silver is added and it is again cupelled. It has been found that the silver cannot be dissolved out of an alloy of that metal with gold, unless the proportion of silver is at least 2½ times that of the gold. If a larger proportion is used, the gold is left in the form of a powder, and cannot be dried and weighed without danger of mechanical loss. If less is employed, the gold protects the silver, and the action of the acid ceases, while some of the silver remains undissolved. An alloy of 3 parts of silver to one of the gold was formerly taken, from which the common term quartation comes, but of late years the above proportions have been found to be best.

As the button resulting from the first cupellation may contain silver, it will be necessary to ascertain if such is the fact, and if so, in what quantity it may be present.

A preliminary assay is easily made by means of the touch needles as described in a former article. When great accuracy is required—as in case of many assays of gold from the same mine,—half a gramme may be cupelled with 5 or 6 parts of silver and the proper quantity of lead, the resulting button rolled out and boiled in nitric acid, as will be fully described hereafter. With the data so obtained it will be easy to make up the proper alloy, for the actual assay. By this method the gold will be obtained as a powder, but the results will be sufficiently accurate for a preliminary assay. For all practical purposes the test needles will give results sufficiently exact, and may be confidently used after a little practice.

An example will fully explain the manner of making up the alloy.

The button is found to weigh 972 one-thousandths of the unit, according to the weights used, and by preliminary assay the gold 896 fine. Which as before explained is 896 thousandths, it is evident that there are 896 of gold and 76 silver in the alloy, very nearly. If these results were accurate there would be no use of proceeding any further, but the results are only sufficiently so to ensure a good alloy for the continuation of the assay. Multiply the gold by 2.5 which will give the silver required to be added to the gold  $896 \times 2.5 = 2,240$ , but there is already 076 parts of silver with the gold, which must be subtracted, therefore 2,164 is the amount of silver to be added to the button  $896 \times 2.5 - 76 = 2,164$ .

The silver used need not necessarily be chemically pure, but it must contain no trace of gold. It is convenient to roll it out in thin strips to be cut with scissors as required.

When the proper amount of silver is weighed out it is to be folded in lead foil with the gold button and cupelled as before.

Two of the gold buttons which weighed alike in the first cupellation must be alloyed with silver and treated as above. It is not absolutely necessary to cupel the alloy the second time but it is convenient to do so while the muffle is hot, and it issues a malleable button which can be rolled out without breaking, and there is more certainty in unskillful hands of perfect fusion, and consequently, perfect mixture of the two metals, which must be the case to obtain perfect results. But the gold and silver may be melted together in a cavity in a piece of charcoal by a person skilled in the use of the blowpipe, with the same certainty of success, as when the muffle is employed.

The buttons resulting from the second cupellation are removed from the cupel, hammered slightly on the edges, to remove the bone ash, and afterwards flattened on an anvil by blows from a small hammer, the last blow being given near one edge to make that part thinner to facilitate the rolling process which follows.

At this stage, before rolling out the alloy they should be annealed; which can be done in the muffle if still hot, or upon charcoal with the flame of a spirit lamp, urged with a blow pipe. They are then rolled out into ribbons about three or four inches long, and then rolled up into a spiral form upon a glass rod or lead pencil. A slight pinch after this rod is removed will prevent their unrolling. They are then ready for treatment with acid.

The cornets are next placed in clean flasks and covered with about a fluid ounce

of the 20° nitric acid, placed on the sand bath which acts as cover of the furnace as before described, or on a small sand bath supported on the ring of a retort-stand over a spirit lamp, and boiled until no more red flames are evolved. A folded piece of paper or a pair of wooden tongs are used to lift the flasks and to pour the acid carefully into some convenient vessel kept to receive it, as the silver is valuable and may be recovered when a quantity has accumulated. The same quantity of 30° acid is then poured into each flask and being placed on the sand bath, again boiled; a small piece of charcoal which must not contain chlorine, is put into each flask to prevent bumping. After five minutes boiling the acid is poured off and each flask is filled up with distilled water, which is carefully rejected and the flasks again filled with the distilled water, this time quite full to the brim. Over the mouth of each flask a dry cup is placed, mouth downward like a cap, and the flask and dry cup inverted together. The cornet falls gently and without breaking to the bottom of the cup; the flask is then gently raised until on a level with the edge of the cup, when with a quick side motion the flask is removed and held for a moment to allow the water to fall from it, when it is set aside. Both flasks are treated in the same way. The water in the dry cups is then poured off without disturbing the cornets, after which the cup with the cornet in it is carefully dried and afterwards heated red hot in the muffle. The gold will be found to have regained its natural color and can be removed without danger and taken to the scales to be weighed. If the operation has been skillfully conducted the result is practically pure gold. It must be weighed accurately noting any memorandum regarding the position of the index in weighing out the bullion in the first operation. Its weight will represent the fineness of gold in the bar expressed, as before in thousandths.

As in the first example, suppose the total fineness to be 972, and the fineness of gold as found by assay, to be 898, by subtracting the result from the first, the fineness of silver will be found to be 72.

Now as an ounce of pure gold is worth \$20.6918, one one-thousandth will be worth \$0.0206918, therefore, an ounce of alloy containing 898 parts of pure gold would be worth  $898 \times 0.0206918$ , or \$18.56.327. The last three decimals may be disregarded unless the bar is very large.

The value of the silver is obtained in the same way. An ounce of pure silver is worth \$1.2929, and one-thousandth equals \$0.0012929. This multiplied by the fineness of silver as found would give the value of the silver in each ounce of the bar.

To facilitate this calculation I have computed a table by which multiplication is avoided.

TABLE FOR COMPUTING THE VALUE OF GOLD BULLION.

Fineness.	0	1	0	3	3	5	9	1	7	3	1	2
000%.....	0	2	0	5	7	1	8	3	4	5	2	5
001.....	0	4	1	3	4	3	5	6	9	2	5	0
002.....	0	8	2	0	1	5	0	3	8	7	5	0
003.....	0	8	2	5	8	7	3	3	8	5	0	0
004.....	0	8	2	5	8	7	3	3	8	5	0	0
005.....	1	2	4	3	5	9	1	7	3	1	2	5
006.....	1	2	4	3	5	9	1	7	3	1	2	5
007.....	1	4	4	7	0	2	8	4	2	3	7	5
008.....	1	5	5	3	7	4	5	7	7	0	0	0
009.....	1	8	6	0	4	6	5	1	1	5	2	5

TABLE FOR SILVER.

Fineness.	0	0	0	5	4	6	4	5	4	5	4	5
000%.....	0	0	1	2	9	2	9	2	9	2	9	2
001.....	0	0	2	5	8	5	8	5	8	5	8	4
002.....	0	0	3	8	7	8	7	8	7	8	7	5
003.....	0	0	5	1	7	1	7	1	7	1	5	8
004.....	0	0	5	4	4	5	4	5	4	5	4	0
005.....	0	0	7	7	5	7	5	7	5	7	5	2
006.....	0	0	7	7	5	7	5	7	5	7	5	0
007.....	0	1	0	3	4	3	4	3	4	3	3	5
008.....	0	1	1	5	3	6	3	6	3	5	2	8
009.....	0	1	1	5	3	6	3	6	3	5	2	8

The manner of using this table is the same as a similar one described in a former article:

800 same as 008 decimal 2 places right = \$16.53745  
090 " " 009 " 1 " " = 1.86045  
098 " " " " " = 1.6537

898 = \$18.56329

### SILVER.

070 = same as 7, 1 place right ..... \$0.0905  
002 " " " " " ..... .0025  
072 = \$0.0930  
Value of gold per ounce ..... \$18.56.32  
Value of silver per ounce ..... .00.30

Total value per ounce ..... \$18.56.32

These results multiplied by the number of ounces and decimals of an ounce the bar weighs, would be its value in dollars and cents.

Suppose the bar weighed 100 ozs.;  
Value of gold ..... \$1856.32  
Value of silver ..... .30

Total value ..... \$1856.52

The following must be stamped on the bar before it can be sold:

Number of the assay; name of assayer; weight of bar in ounces and decimals; fineness of gold; fineness of silver; total value of the bar in dollars and cents.

[To be continued.]

## PROPELLER ENGINES IN 1804.

BY OUR NEW YORK EDITOR.

In the life of some great man or other whose name we have forgotten, or may be never knew, we believe a story is told of a man "belonging to the Irish persuasion" who, in company one day, made a very brilliant and witty remark, but was promptly snubbed by another, who said that a Latin author wrote the same thing upwards of two thousand years ago. "O! Confound those ancients, they are always stealing one's best ideas," was the poor fellow's only reply.

"O! Confound those ancients, they are always stealing one's best ideas" was our thought, as we stood a few days since before a high pressure steam engine with a tubular boiler and twin screws used in a steamer on the Hudson river in opposition to Robert Fulton" in 1804, sixty-seven years ago. Sixty-seven years ago! Why that was before "Ericsson, the father of screw propulsion" was born. It was before a non-condensing engine was thought of, at least according to the authorities. It was before the days of lathes and planers and boring engines. Then a machine cut-screw was a refinement only dreamed of by the mathematical instrument makers. That was a time when files and hand-drills, and vices and blacksmith's hammers were the standard tools for workers in iron. Machine shops did not exist, and the blacksmith was the only machinist. In those days taps and dies produced such screws and nuts as would drive a journeyman blacksmith of the present day into fits. That was a time when a casting of a hundred pounds in weight was counted a greater thing in a foundry than tons do now.

Yet here, before our face, was a high pressure steam engine, which sixty-seven years ago was actually driving a boat some 40 feet long, by means of the two screw propellers on the table by its side.

Our readers may guess with what interest we examined every part of this engine. It was built by Col. John Stevens of Hoken, N. J.

The cylinder, which was upright, was about one foot long, and as the steam-chests are arranged so that their "nozzles" covered the whole cylinder-head under the covers, it gave the piston one foot stroke. The bore, as well as we could judge, is six inches. There are two cranks on a level with the base of the cylinder with their shafts parallel to each other and to the keel of the boat. There are no guides, and none are needed, as the action of the connecting rods neutralized each other. The shafts at a short distance from the cylinder carried two light cog wheels some 20 inches in diameter, which, meshing into each other, prevented one crank from getting out of stroke with the other, or from reversing in case the engine stopped on centre. The cross-head is very similar in form to that in use now and so are the connecting rods.

The crank brasses are like those in common use now, but the straps are a part of the piston rod and are cut open at the end so that the keys were outside of the crank pins. The valves are of the circular pattern, and we are told that they are much like two-way cocks. The valve motion would need a figure to explain it, but it is quite simple in action; the reversing wheel and the way in which it changes the driving wheel of the valve gear from one side of the driving stud to the other, would not be a bad idea on some styles of modern engines. The pump is inclined and is driven from a crank, and to-day works as easily as one could ask. It probably would take only a few hours to set the engine running.

The boiler is of welded iron tubes each about an inch in external diameter. The steam dome, into which they are all fastened, is about two feet high, oval in section, six inches in diameter at the top, and about eighteen inches at the bottom. The outside shell or fire box is about five feet eight inches long and eighteen inches square on the end. The safety valve is of the usual



pattern though seemingly small. The weight was missing.

The propeller shafts are about twelve feet long and rather over an inch in diameter. The hubs are tapered on each side of the blades so as to prevent as little resistance as possible to the water. The engine must have been about fourteen feet from the stern of the boat. The propellers themselves are nearly if not quite twenty inches in diameter. The blades stand at an angle of 45°, or nearly that. Taken all in all they are not nearly as old fashioned in appearance as one would suppose. The measurements which we give are mostly by the eye, as we had no other means of getting at dimensions.

We could hardly believe our own eyes as we examined the details of the machine. There were refinements of construction which in their rough way forestalled the most modern practice. The work, it is true, was of a rude kind, because performed with the most primitive tools, yet it was plain that it was no journeyman who handled the file which fitted the valve and pump guides.

As we turned away we could only think of the words "there were giants in those days." It was work worthy of a giant mind to design and construct such an engine at such a time and with such tools. We looked in vain through the fair to find another thing as far in advance of the time in which it was made, or a thing demanding as much power of thought to originate. It is almost without a parallel in history.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

- FOR THE WEEK ENDING SEPT. 26.
- HORSE-POWER.—Return J. Cheuey, Petaluma, Cal.
  - ANIMAL TRAP.—John H. Mooney and Geo. A. Lloyd, San Francisco, Cal.
  - MANUFACTURE OF DENTAL PLATES.—Francis M. Shields, Sacramento, Cal.
  - LAMP-WICK ADJUSTER.—Levi Bennett Lathrop, San José, Cal.
  - BUTTER-WORKER.—Peter P. Meredith, Stevensville, Mon. Ter.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Removal of Our Office.

We know that our readers feel a personal interest in the prosperity of our enterprise, and it is for this reason we will say a word or two about our removal. We dislike changes of business locations, on general principles; but we have been so long away from the business center of San Francisco, (which has for years been moving towards Market street,) that we very gladly embraced the opportunity of placing ourselves in our present desirable quarters, on the Southeast corner of Montgomery and California streets, diagonally across from the well known location of Wells, Fargo & Co's. Express office. We have taken a lease of the entire 3rd story of the building, where our numerous friends will find us with pleasant apartments. Every branch of our business has steadily increased, during the past eight years, and now fully justifies what we have fortunately secured, one of the best and most central locations in the city—where we shall at all times be pleased to see our generous and intelligent patrons.

Our editorial rooms and printing office will remain for the present at the old place, No. 414 Clay street.

AUTOMATIC STEAM VACUUM PUMP.—In our issue of Sept. 23rd, we inadvertently stated that Hanscom's Steam Vacuum Pump, was the only one that received a diploma at the late Mechanics' Fair. By request of Messrs. Hanscom & Co. we would state that the Knowles' Steam Pump also received a First Premium.

Mill Machinery Manufacture.

The extent to which the manufacture of specialties has been carried in our country is astonishingly large. In the large cities establishments have grown up which turn out material to the value of millions yearly. With their oft-used patterns, improved appliances and workmen skilled in their particular branch, such factories are enabled to supply the most distant places at prices which will bear the added cost of freight and yet will be lower than those possible in establishments of a more general character.

It is for this reason that we found in Philadelphia the extensive works of Thos. Wood, sending out their special class of machinery made to order for nearly every if not all the States in the Union. Over six hundred

Power Looms

Are made per annum by this firm. Their orders now are largely from the South and West—Texas and Colorado, both sending in lately.

Mr. Wood has two shops,—one at 2106

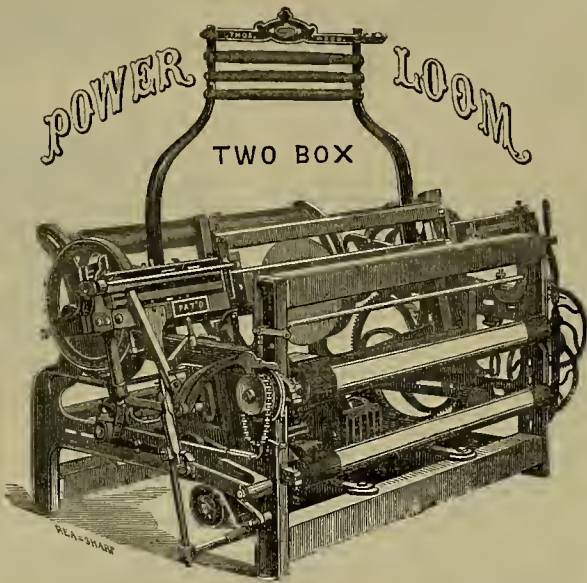
since the day of starting, and the bearings are reported still good and but little worn.

The bearings are all graduated in length according to the character of the journals they are to carry—from 1 to 6-in diameter. The only perfect set of

Graduated Pulleys,

From 4 to 78-in diameter in this country, are owned by Mr. Wood, who prides himself on the scientific exactness with which he can turn out his pulleys with all the requisite strength and with unrivalled uniform lightness. This is a feature especially favorable to buyers, who avoid the first cost of superfluous metal and its transportation, and receive a more evenly and elegantly running gear. His graduating scale governs the width of the face and the thickness and amount of metal in all parts of different width pulleys by their diameter. His patterns for molding pulleys and hangers are all of iron.

The works of this establishment were being extended by additional building and we were assured by the proprietor that his



Wood street, for shafting, hangers, pulleys, etc.; and the other, (occupying a lot 100x250 feet on the corner of Wood and Hamilton streets), for power looms. Over 150 men are employed.

The accompanying engraving shows plainly one of their two box power looms, a well finished and reliable machine in all respects. Those versed in such machinery will understand its features and we will therefore omit any lengthy description which would be uninteresting to others.

Their power looms embrace the latest actual improvements for a wide variety of goods, plain and fancy, in cotton and woolen.

Shafting and Mill Gearing

Have been a specialty with Mr. Wood for 30 years, and improvements have been steadily added until great precision and economy has been attained in all work—which embraces the taking of plans for factories in any locality and fitting them out completely with shafting and gearing of the most approved patterns.

Self-Oiling Hangers

For shafting are coming popularly into use, 25,000 per annum going out of this establishment. The boxes are formed with grooves in such a manner that by capillary attraction, the oil is carried by the stuffing to the shafting and distributed, and by gravitation is returned again free of dirt and foreign substances for re-distribution.

The style shown us here were superior for lightness obtained without compromising strength in the parts liable to strain. Their efficiency and durability is attested by the fact that a line of shaft of 110 feet held by 13 hangers has run in daily use since April, 1867, without oiling the boxes

devotion to the manufacture of certain specialties was being fully appreciated and evidenced by the return of duplicate orders, most markedly from the South and West.

THE SCHELL CREEK MINES.—These mines, which are just now attracting much attention, constitute a recent discovery in the vicinity of the old Schell Creek Station, or the Overland Mail route. According to the *Elko Independent* they are creating an excitement little less than that which accompanied the discovery of the Eberhardt mine, at Treasure City. Miners are flocking thither in great numbers. Already, it is said, there are more than 1,500 in and around Schellburn, as the new town laid out near the mines is called. Our correspondent, Mr. A. J. Brown has visited the locality and in a communication in another column, gives us an interesting description of the locality.

MACHINE WORKS.—A few days ago, we stepped into the machine shop of Mr. Geo. T. Pracy, 409 Mission street, in this city. Although situated somewhat on the outskirts of the general location of similar establishments, we were pleased to see the large amount of business carried on in a place so unpretentious and the good taste displayed, particularly in the selection and use of the best character of tools, together with the general order and arrangement of all its internal workings. For the kind and variety of work turned out, our readers are referred to advertising columns.

LOW WATER.—The Sacramento river is one foot lower at Chico than ever known before.

Explosion of Torpedoes.

NOTES BY OUR NEW YORK EDITOR.

On the 14th. of last month, New York had another horror added to its list. A truck-load of what are known as Union Torpedoes, exploded, doing a fearful amount of damage.

The chief interest which the explosion has, is from the fact, that the ruins give a good illustration of the peculiar effects of a powerful explosive in a great number of small charges fired simultaneously.

The annexed sketch is a section of one of these torpedoes full size. They are made by a machine from a fine clay, and the hole in them filled with a substance which the makers say is not nitro-glycerine. If their statement is true, it only proves that they have discovered an explosive compound equally dangerous and very much like it in results. The opening in the clay is closed by a piece of tissue paper.

The report from one of these is fully equal to that from a navy revolver; the explosion of one is wonderful. Though



the total amount of nitro-glycerine in the whole lot which exploded was small, yet it was large enough to rend to fragments almost every part of the truck; nothing seemed to escape, even the hickory "rungs" standing loosely in their holes were split and shivered to shreds, the double-tree shared a similar fate, and so did every part of the truck, and every object in the vicinity. The small amount of injury done to persons at a distance, and to the buildings, was probably due to the small size of the fragments. Everything was reduced to bits at the instant of the explosion, and consequently there were no large fragments to fly about, a characteristic point in nitro-glycerine explosions.

WATCHES AND JEWELRY.—Our friends may have recently noticed Mr. F. J. Nash's advertisement of jewelry and watches, in our columns. We very cheerfully give Mr. Nash our endorsement. We have recently had some dealings with him, and find him in every way reliable. His business is conducted on what is to many a new plan, but which affords great advantages to the purchaser. He offers to distant purchasers, as great facilities for buying Waltham and Elgin watches, as though they were on the spot, while his prices are much lower than the published lists. He sells solid silver and 18 and 14 carat gold watches of foreign manufacture at very much under the usual rates, and allows purchasers the privilege of opening all goods sent by express, before paying for them, and returning them if not found all right. It will interest our readers perhaps, if we explain the way in which Mr. Nash is enabled to sell standard goods so cheaply. It is accomplished in this way—he buys directly, and in large quantities, from the manufacturers, and sells to individuals giving them the advantage of two profits or commissions which they would otherwise be obliged to pay to retailers. That is the whole secret. There are two profits saved to the customer, which are usually very large.

CIGARS BY MACHINERY.—Mr. J. A. Heald, for several years the patriotic leader of the American Brass Band, in Washington City, has completed a device for making cigars entirely by machinery. He employs six rollers for sharpening the cigars—the rollers being convex instead of concave as in other machines. Mr. Heald has one of the most indomitable wills we ever met, and has spent fourteen years on this apparatus, which is protected by six patents, embracing 60 claims. His present address is Lowell, Mass.



## DOMESTIC ECONOMY.

### The Philosophy of Eating.

The young eat for three reasons: 1st, to grow; 2d, to keep warm; 3d, to repair waste. Hence all food contains one of two elements, and sometimes both, called nitrogen and carbon. The nitrogen makes flesh, sometimes called muscle, and is the same as lean meat. Carbon makes fat, and is that which keeps us warm. Sugar, starch, arrowroot, oil, butter, suet, and lard have no nitrogen, there is nothing in them to make flesh out of; all the nutriment they afford to carbon, is the material for warmth.

Infants and children often get so chilly as to freeze, as it were, unless they had something sweet in their food; hence nature has implanted in them an unspeakable taste for sweet things. The thing the newborn infant needs first and always is warmth. Butter, oils, and starches abound also in the heat-producing elements, but require strong powers of digestion—are applicable to grown persons, and to the old; hence, as we grow old, we like fat meats and butter more.

It is in obedience to these laws that the Almighty beneficence and wisdom has imparted a relish for the oils and fat meats in winter, because extra heat is needed. The Greenlanders; whose country is always covered with ice and snow, consider butter and lard and tallow candles and the rankest oils the greatest luxuries conceivable. But rice, on which many in warm countries chiefly live, is said to contain scarce one per cent. of the fat or heat-producing element, while oils have 96 per cent. of it.

All know buckwheat cakes are relished in winter, but as spring comes on we begin to lose our appetite for them. The cakes themselves contain 54 per cent. of fat as heat-producing elements, and they are made more palatable by spreading butter on them, and molasses, each being almost entirely—96 per cent.—heat-producing.

But out-door workers eat meat and bread the year round, and never weary of it, because 22 per cent. of such food is flesh-forming, and gives that much power and strength to work.

**PARLOR MATCHES.**—A good match is still a thing to be desired, and a man who invents the right thing will be a benefactor. What are called parlor-matches, having paraffine or some like substance instead of sulphur to set the stick aflame are dangerous in any case, and rendered more so by carelessness in the manufacture. Such a match dropped on the floor is ready to flash under the tread of a child's foot and set its dress on fire, and is by no means a safe domestic appliance.

But as they are now made the danger is increased. Out of a whole box perhaps only half will ignite. As for the rest, their heads fly off and scatter themselves about the house ready to burn a hole in the carpet, if they do no more damage, when any one steps upon them; to say nothing of the disagreeable crash as of a percussion cap under one's feet.

People had better leave such wares alone and put up with the plain sulphur matches till something better is devised. The death of the young Austrian Princess by treading on the parlor match a few years since may well stand for a warning.

**TO STEAM A TURKEY.**—Rub pepper and salt inside the turkey, after it has been well dressed and washed; then fill the body with oysters; sew it up carefully; lay the turkey in a large dish, and set it on a steamer, placed over boiling water; cover closely, and steam from two hours to two hours and a half—or till by running a fork into the breast you find it is well done. Then take it up; strain the gravy which will be found in the dish; have an oyster sauce ready, prepared like stewed oysters, and pour this gravy, thickened with a little butter and flour, into the oyster sauce; let it just boil up, and whiten with a little boiling cream; pour this sauce over the steamed turkey, and send to the table hot. Of course, while the turkey is steaming, you will have the oysters all ready for the gravy from the dish, and the cream also boiled, that there may be as little delay as possible after the turkey is cooked.

**TO KEEP BUTTER.**—A simple mode of keeping butter in warm weather, where ice is not handy, is to invert a common flower-pot over the butter, with some water in the dish in which it is laid. The orifice at the bottom may be corked or not. The porousness of the earthenware will keep the butter cool.

### Drying and Cooking Green Corn.

Putting up corn in salt, and then soaking it to get the salt out, in my opinion draws all the sweetness from it. My way is to take the corn when in the right stage, neither too young nor too old, have on the fire a large pot of boiling water, clean the corn of silk, drop it in the pot and parboil till half done; take up, let it drain and cool, then cut, not too close to the cob, but scrape the cob after it is cut, spread on a sheet and dry in the sun. Dry as quick as possible to prevent souring. Let it get thoroughly dry before putting away; put in a thin cotton sack and hang in a cool, dry place. Sun occasionally to keep it from getting musty.

To cook it, take as much as you require, winnow it to get the chaff out, wash through one water, and put in soak in just enough water to cover it; you may put it in soak as early after breakfast as you like; about two hours before dinner, put it on in warm (not hot) water, and boil gently, but steadily, for an hour and a half, or until the corn is tender, and the water nearly all hoiled away. Then add a cup of rich milk, a good lump of butter, and salt and pepper to taste, and let it stew in this another half hour so as to have just a good gravy to it when done. When you put it on to boil, turn in the water in which it has soaked. I allow a quart of water to a cup of corn, and let it boil away till nearly dry; but if boiled too fast it will hoil away before the corn is done. Stir it once in a while and mind it does not burn after the milk is put in. I hope some of your readers will try my way, for every one tells me that I cook it better than any they ever tasted. Be sure and not have the liquor too thin, and have it rightly seasoned. If there is too much water remaining after it is tender pour some off before you add the milk, but it is better to reduce it by boiling so as to retain the flavor of the corn as much as possible.—*Rural New Yorker.*

**PICKLED WALNUTS.**—Gather the nuts just before the kernel commences to harden, prick them through and through several times with a coarse needle, put them into a crock, pour over them a rather strong brine, and allow them to remain for three or four days; drain and spread them in the sun until they are dry, and have turned to a dark brown or nearly black color. Put them now into a suitable jar, and pour over them boiling spiced vinegar, using two ounces of mustard seed, a little mace, two ounces of allspice, and two ounces of whole black pepper, to one gallon of vinegar; a few onions may be added if your taste will permit. This pickle may be used any time after making, but is much better for being kept a year. After the pickles are used the vinegar may be hoiled and bottled for catsup.

**DRYING PEACHES.**—Never pare peaches to dry. Let them get mellow enough to be in good eating condition, put them in boiling water for a moment or two, and the skins will come off like a charm. Let them be in the water long enough, but no longer. The gain is at least six-fold—saving of time in removing the skins, great saving of the peach, the part of the peach saved being the best part, less time to stone the peaches, less time to dry them, and better when dried. A whole bushel can be done in a boiler at once, and then the water turned off. Two bushels can be skinned, stoned (halved,) and on the boards, before a quarter of them could have been peeled.

**SAVE THIS FOR NEXT WINTER.**—To mend rubber shoes, get a piece of pure rubber—an old shoe—vulcanized rubber will not do; cut it into small bits; put it into a hottle, and cover to twice its depth with spirits of turpentine or refined coal tar naphtha—not petroleum naphtha. Stop the hottle and set to one side, shaking it frequently. The rubber will soon dissolve.—Then take the shoe and press the rip or cut close together, and put on the solution with a camel's hair brush. Continue to apply as fast as it dries, until a thorough coating is formed.

**TO PRESERVE PEGGED BOOTS AND SHOES.**—It is said that if pegged boots are occasionally dressed with petroleum between the soles and upper leather, they will not rip. If the soles of boots and shoes are dressed with petroleum they will resist wet and wear well. The pegs, it is said, are not affected by dryness after being well saturated with the liquid.

### Domestic Receipts.

**PUMPKIN PIES** is a seasonable receipt at this time. If you would have a superior pie;—Stew the pumpkin, then strain—but remember, it must be a fine grained pumpkin—cream is preferable to milk where it can be had; use but small quantity of egg; mace or cinnamon for spice, or both, or none. Our wife prefers none. Roll the pastry very thin. A crust can be dispensed with by sifting a thin layer of corn meal over the oiled pie dish; it forms a sufficient firmness to hold the “filling” when served.

**CRAB APPLE JELLY.**—If you would have it nice, take four quarts of apples or more, put them in a kettle to hoil with enough water to come to the top of the apples, let them hoil slowly for three quarters of an hour, then drain off the liquor and add its weight in sugar. Boil fifteen or twenty minutes. Take off the scum as it rises. Put into glasses as soon as it is done.

**FRENCH MERINGUE.**—One gill of sugar; one quart of milk; one pint of bread crumbs; the yolks of four eggs. Flavor to taste and bake. When cold, spread on top a little raspberry or other jam or jelly; beat the whites of the eggs to a meringue; sprinkle with fine sugar and brown for a moment in the oven.

**TO CLEAN KNIVES.**—Cut a good-sized, solid, raw potato in two; dip the flat surface in powdered brick-dust, and rub the knife-blades. Stains and rust will disappear.

**SAUCE FOR SALADS.**—Two hard hoiled yolks of eggs, mashed smooth, with a tablespoonful each of cream and olive, add sufficient vinegar to make it pretty sharp.

**A NICE OMELET FOR BREAKFAST.**—Beat two eggs, yolks and whites together, in a bowl until very light. In a cup put one teaspoonful of corn starch; add slowly a half teaspoonful of milk (new milk is best); when well stirred and smooth, pour this over the eggs, and heat them all well together for a few minutes; a little chopped parsley can be added if wished. Cook as other omelets. In making any kind of omelet salt and pepper should not be added until sent to table; and to have them perfectly light and not tough, the ingredients must be well and quickly beaten with the fork. The quantity given for this omelet is enough for three persons.

### Mechanical Hints.

**TO DARKEN LIGHT MAHOAGNY.**—In repairing old furniture it sometimes happens that we cannot match the old wood. In such cases, after the repairs are completed, to prevent the pieces looking like patches, wash them with soap suds, or with water in which quick lime has been dissolved; but be careful not to let either be too strong, or it may make the wood too dark. It is best to use the wash weak at first, and if the wood is not made dark enough repeat.

**GUM TRAGACANTH MUCILAGE** can be prepared much more quickly and of a more uniform consistency by first rubbing up the powdered gum with a little glycerine before the water is added; as in this way the formation of lumps is entirely avoided.

**HOW TO CUT A GLASS BOTTLE OR DECANTER WITHOUT A DIAMOND.**—A correspondent sends the following: “Dip a piece of fine twine in cold water, then tie it tightly round the bottle or decanter where you wish to cut it; care should be taken to have the twine quite straight; hold the decanter over a candle keep turning it round until it becomes quite hot; then put it in cold water so that the edge of the twine is just covered; the decanter will be cut level with the twine.”

**THE QUALITY OF GLUE.**—Experience has shown that glue undergoes a chemical change when dried in the air, and its adhesive properties are decidedly deteriorated. To avoid this, says Prof. Wagner, in his report for 1869, some of the manufacturers have introduced a pure liquid glue in close packages, which is said to be superior to the dry article. It is prepared by digesting hones in a peculiarly constructed apparatus, and is sold according to a fixed specific gravity, so that the purchaser does not pay for the water, which, in dry glue sometimes amounts to twelve per cent. The price is also less than for dry glue.

**GREEN TOMATO SAUCE.**—One quart of green tomatoes cut up fine, a small onion shred fine, a tumbler of good brown sugar, one of vinegar, pepper, salt, allspice, and cloves to taste. Boil to a jam, stirring frequently. It must not scorch. An excellent sauce for fresh meats. Keep in small jars.

## LIFE THOUGHTS.

God helps those who help themselves.  
Look before you leap; think before you act.

Good manners are sure to procure respect.

The blood is to the flesh what rain is to grass.

POLITENESS is like an air cushion; there may be nothing in it, but it eases our joints wonderfully.

As daylight can be seen through very small holes, so little things illustrate a person's character.

If a man does not make new acquaintances as he advances through life, he will soon find himself left alone. A man should keep his friendship in constant repair.

YOUTHFUL minds, like the pliant wax, are susceptible of the most lasting impressions; and the good or evil bias they then receive is seldom if ever eradicated.

He that speaks, sows; he that hears, reaps; hence we should be guarded as to how we speak, as to what we hear. “He that hath ears to hear, let him hear;” but take heed how ye hear.

Men's lives should be like the days, more beautiful in the evening; or like the summer, aglow with promise; or like the autumn, rich with the golden sheaves, where the good works and deeds have ripened on the field.

The very best and the very worst of men are as good, or not as bad as they seem to be. Calculate accordingly in estimating your fellow-men.

If you are to judge of a watch, which you find does not go well, you will certainly examine whether the movement is hindered by any accidental obstructions, before you condemn it. Should not the same rule be observed where it seems to be often neglected? I mean in our judgment of each other.

### The Way to Success.

Fortune, fame, success, position are never gained, but by piously, determinedly, bravely sticking, living to a thing till it is fairly accomplished. In short, you must carry a thing through if you want to be anybody or anything. No matter if it does cost you the pleasure, the society, the thousand pearly gratifications of life. No matter for these. Stick to the thing and carry it through. Believe you were made for the matter, and that no one else can do it. Put forth your whole energies. Be awake; electrify yourself; go forth to the task. Only once learn to carry a thing through in all its completeness and proportion, and you will become a hero. You will think better of yourself; others will think better of you. The world in its very heart admires the stern, determined doer. It sees in him its best sight, its brightest object, its richest treasure. Drive right along, then, in whatever you undertake. Consider yourself amply sufficient for the deed. You'll be successful.

**GUILT**, though it may attain temporal splendor, can never confer real happiness. The evil consequences of crimes long survive their commission, and, like the ghosts of the murdered, forever haunt the steps of the malefactor. The paths of virtue, though very seldom those of worldly greatness, are always those of pleasantness and peace.—*Sir Walter Scott.*

**THE INFLUENCE OF ONE ACT.**—One pound of gold may be drawn into a wire that would extend around the globe. So one good deed may be felt through all time, and cast its influence into eternity. Though done in the first flush of youth, it may gild the last of a long life, and form the brightest and most glorious spot in it.

**TRUE Religion** is not a routine of ceremonies, nor yet the essence of any special creed. The religious sentiment is inherent in every nation of the human race. It gives a beauty of its own to all the external forms of creation, and everything that is true and noble in man's soul springs from its source.

It is as unjust to the Bible as it is votacious to science to endeavor to reduce scientific systems into conformity with the Biblical accounts, or to require the Bible to give us scientific systems.

**REASONING** against a prejudice is like fighting against a shadow; it exhausts the reason without visibly affecting the prejudice. Argument cannot do the work of instruction more than blows can take the place of sunlight.

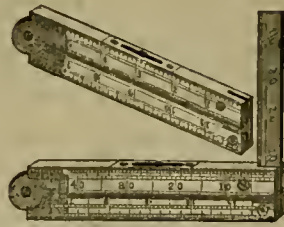


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This cut represents the COMBINATION RULE, which comprises a Foot Rule, Spirit Level, Try Square, Bevel, Plumb, Slope Level, Etc.

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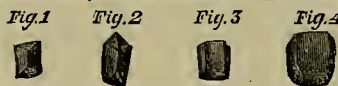
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Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burns, Emery-Wheels, Grinding-Stones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truening up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1870; Engineering and Mining Journal, Jan. 17th, 1871; Scientific Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to ap15-6m J. DICKINSON, 54 Nassau St., N. Y.

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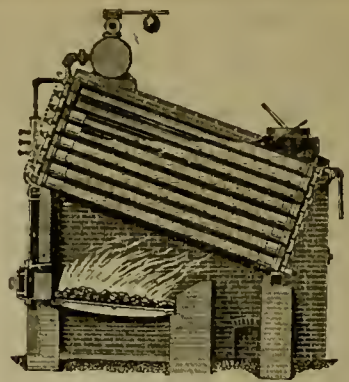
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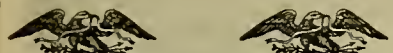
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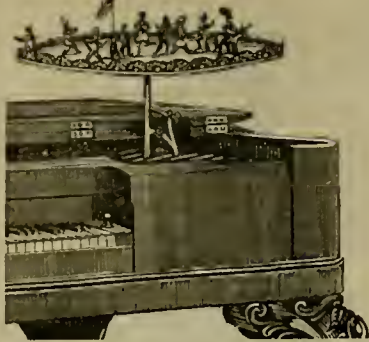
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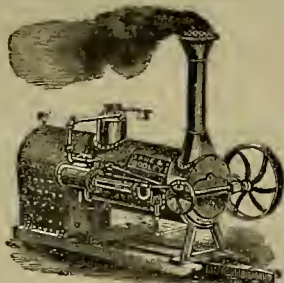


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## Academy of Sciences.

## Interesting Discussion About the "Dust Shower."

At the meeting of the Academy on Monday evening last Mr. H. G. Hanks exhibited

## A Curiosity,

in the shape of a singular concrete substance taken from the stomach of a deer. This substance, which was nearly round and about three inches in diameter, black and very hard, he stated was highly valued by the Mexicans for its traditional medical virtue, and was to be sent there by the owner and sold for charms. The cause and formation of this substance afforded food for considerable discussion.

## The Dust Shower.

Our readers will recollect the statement which recently appeared in the public prints to the effect that while, on the morning of September 10th, 1871, the ship *Transito d'Alvarez*, Captain S. P. Lund, was about 85 miles west of Cape Lookout, on the coast of Oregon, with a light breeze blowing, which continued for three days, the sun was obscured for an entire day by a peculiar yellow haze, and during this obscurity it was observed that a light dust was falling. A small quantity was collected, and furnished to Mr. Hanks, upon the examination of which, he made the following report:—

The microscope revealed, in the heavier portion of the dust whitish particles resembling chloride of ammonium, but which were insoluble in water and not acted upon by the mineral acids. Particles of sand were also present, and some dark-colored grains, the nature of which was not evident. But the most interesting discovery was a black, cellular, shining substance of very peculiar appearance. After many comparative tests it was found that fine charcoal most resembled it under the microscope, but upon its being placed on platinum foil and exposed to red heat, it was found to burst into a dense flame, leaving a whitish ash, resembling no coal that could be obtained. In a closed tube it gave off water, followed by a copious distillate of a heavy yellow oil with a strong bituminous smell.

The reading of the report led to a very interesting discussion as to the supposed cause of this dust fall, and many views were expressed. Mr. Hanks stated that at first he was of the opinion that the deposit might be partially formed of smoke from tulle fires, but the absence of vegetable charcoal contradicted this. He had also thought this might have been caused from the volcanic eruptions on the Sandwich Islands. The volcanic matter carried above the trade winds was there carried to the northern country.

Prof. Kellogg believes this might have been a *bona fide* dust shower. Showers of rain and of iron are common, and it was known that dust was continually falling at some places.

Dr. Cooper advanced the opinion that the burning asphaltum beds on Whidby's Island, near Vancouver's Island, might have furnished this phenomena. These beds often caught on fire, and the smoke, in extensive clouds, was carried a great ways, and some particles of sand or silica in this case, may have been carried with it.

This theory was considered the more probable of any advanced, the analysis of the dust proving it to be very similar to the particles arising from burning asphaltum.

**RAIN.**—Humboldt county, the Russian river, and some portions of Sonoma county, have been visited with quite copious showers within the past two weeks. The Humboldt *Times* thinks considerable injury must have been done to the wheat and hay which was exposed to the weather in that locality. The same rain, according to the Vallejo *Chronicle* extended southerly as far as the borders of Solano county. A few scattering drops fell in Vallejo.

It is quite time that farmers were getting their grain and hay under cover, as the indications rather point to early rains. Much damage has been done to exposed grain nearly every season, in the past, but it is to be hoped that the scarcity and high price of grain this year will lead to more care in guarding against such unnecessary loss.

**THE WINE GROWERS** of San Joaquin County will make a much larger quantity of wine this fall than ever before.

## The Merced Cotton Experiment.

Notwithstanding the success of this particular enterprise on the Buckley Bros' ranch, there is no reason for supposing that cotton can be grown with profit in the great central valleys of the State, generally. The plant must have access to moisture in some way; yet there are few plants which thrive better than this from irrigation.

The Merced plantation is located directly upon the bank of the river, and at a point where the land is generally only two or three feet above the surface of the water, hence the roots of the plant have no difficulty in finding a sufficiency of moisture. A small portion of the field, which was a little above the general level had to be irrigated. This experiment, however, proves that our soil and climatic conditions are very favorable for such a growth, which might undoubtedly be made a valuable crop on most lands, the breadth of which is constantly being increased by reclamation from the tule; and on much other land which is conveniently located for irrigation.

According to the Snelling *Argus*, some of the stalks contained over 200 well developed bolls, and on one 250 were counted, each of which, it was thought, would fully mature. Col. Strong expects to gather 1½ bales per acre—more than double the average product of cotton lands of the Southern States. Picking has already commenced and will probably be continued until the rains set in, as in our dry climate no damage can occur to the fibre until that time.

## Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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**N. Seibert's Eureka Lubricators** for steam cylinders are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8v23-3m

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## Travelers' Guide.

## CENTRAL PACIFIC RAILROAD.

Passenger	Express	Train	October 2, 1871.	Express	Passenger
Sunday	except d	Daily		Daily	excepted
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.	
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.	
5:24 P.M.	9:20 A.M.	San Jose	5:30 P.M.	12:15 P.M.	
6:06 P.M.	10:00 A.M.	Stockton	1:23 P.M.	7:52 P.M.	
6:48 P.M.	10:40 A.M.	Sacramento	11:45 A.M.	6:00 A.M.	
7:30 P.M.	11:20 A.M.	Marysville	9:10 A.M.		
8:12 P.M.	12:00 P.M.	Seaside	8:40 A.M.		
8:54 P.M.	12:40 P.M.	Sacramento	11:45 A.M.		
9:36 P.M.	1:20 P.M.	Colfax	8:45 A.M.		
10:18 P.M.	2:00 P.M.	Reno	1:00 A.M.		
11:00 P.M.	2:40 P.M.	Winnemucca	4:05 P.M.		
11:42 P.M.	3:20 P.M.	Battle Mountain	1:25 P.M.		
12:24 P.M.	4:00 P.M.	Elko	8:45 A.M.		
1:06 P.M.	4:40 P.M.	Orden	5:20 P.M.		

**SAN JOSE BRANCH.**—Leave San Francisco at 9:10 a. m. daily (except Sundays), and 3 p. m. daily. Returning leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily (except Sundays).

**OAKLAND BRANCH.**—Leave San Francisco, "6:50, 9:10, 10:20 and 11:10 a. m., 12:00, 1:30, 3:00, 4:00, 5:15, 6:30, 8:50 and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).

**LEAVE BROOKLYN.** "5:15, "6:30, 7:40, 8:50 and 10:00 a. m., 1:30, 2:40, 4:55, 6:10, and 11:40 p. m.

**LEAVE OAKLAND.** "5:25, "6:40, 7:50, 9:00, 10:10, 11:00 and 11:50 a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

**ALAMEDA BRANCH.**—Leave San Francisco, 7:20, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and 5:30 to Fruit Vale only).

**LEAVE HAYWARD.** "4:30, 7:00 and 10:45 a. m., and 3:30 p. m.

**LEAVE FRUIT VALE.** "5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.

\*Sundays excepted.

## CALIFORNIA PACIFIC RAILROAD.

4:00 P.M.	8:00 A.M.	San Francisco	11:30 A.M.	7:30 P.M.
5:30 P.M.	9:45 A.M.	Vallejo	9:45 A.M.	5:45 P.M.
6:30 P.M.	10:45 P.M.	Calistoga	7:30 A.M.	2:45 P.M.
8:15 P.M.	12:15 P.M.	Marysville	6:30 A.M.	1:00 P.M.
8:15 P.M.	12:15 P.M.	Sacramento	7:30 A.M.	3:30 P.M.

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## SAN FRANCISCO &amp; N. PACIFIC R. R.

.....	"2:15 P.M.	San Francisco	.....	"11:00 A.M.
.....	4:35 P.M.	Donahue	.....	8:45 A.M.
.....	5:00 P.M.	Petaluma	.....	8:20 A.M.
.....	5:35 P.M.	Santa Rosa	.....	8:20 A.M.
.....	6:45 P.M.	Healdsburg	.....	6:45 A.M.

\*Sundays excepted.

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"3:00 P.M.	"4:00 P.M.	San Francisco	"12:30 A.M.	"8:00 P.M.
6:30 P.M.	1:30 P.M.	Benicia	10:30 P.M.	6:00 P.M.
2:00 A.M.	2:00 A.M.	Stockton	4:30 P.M.	
		Sacramento		12:00 M.

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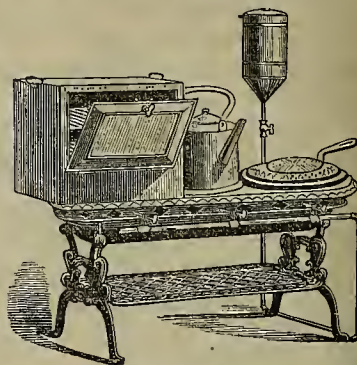
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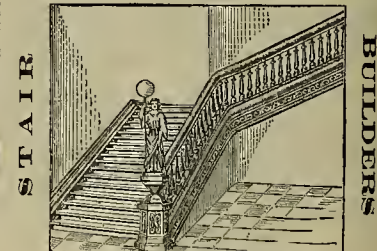
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South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly at ended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners Billiard Balls and Ten Pins. Fancy Novels and Balusters. 21v22-6m.



Under a Burning Sun, where Bilious affections and Fevers of various descriptions so generally prevail, Tarrant's Effervescent Seltzer Apertient

Has been successful beyond all parallel. Hence the physicians of the tropics give it their emphatic sanction, prescribing it in preference to every other apertient in use. The patients, of course, gladly acquiesce, for this preparation is one of the most delightful, as well as mild and cooling cathartics, chemistry has yet devised, and possesses every medical virtue of the far-famed German Seltzer Spa. It is a powder that only requires the addition of water to produce in an instant a delicious effervescent beverage, as well as an invaluable medicine. Ask for and accept none but the genuine.

SOLD BY ALL DRUGGISTS.



## The California Powder Works

No. 314 CALIFORNIA STREET,  
SAN FRANCISCO.

Manufacturers and have constantly on hand

## SPORTING, MINING, And BLASTING POWDER.

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

**Three Gold Medals** By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our **HERCULES POWDER**, which combines all the force of other strong explosive now in use, and the lifting force of the most powerful powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16v20-3m JOHN F. LOHSE, Secretary.



Mining and Other Companies.

Due to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

**Alameda Coal Mining Company—San Francisco and Alameda Counties, State of California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 5th day of September, 1871, an assessment of fifty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, 409 Battery street (first floor), between Olay and Merchant streets. Any stock upon which said assessment shall remain unpaid on the 8th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 30th day of October, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
M. PHILIP, Secretary.  
Office, 409 Battery street, San Francisco, Cal. se21w

**Bellevue Mining Company—Location of works, Ophir District, Placer County, California.**  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 13th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Amt.  
W. C. Stebbins.....31 25 25 00  
Henry Baker.....17 25 25 00  
Henry Baker.....18 944 944 00  
Theodore E. Baugh.....37 100 100 00  
Theodore E. Baugh.....38 100 100 00  
Theodore E. Baugh.....39 100 100 00  
Theodore E. Baugh.....40 100 100 00  
Theodore E. Baugh.....41 100 100 00  
Theodore E. Baugh.....42 100 100 00  
Theodore E. Baugh.....43 44 44 00  
A. C. Peachy.....56 100 100 00  
A. C. Peachy.....57 100 100 00  
A. C. Peachy.....58 100 100 00  
A. C. Peachy.....59 100 100 00  
A. C. Peachy.....60 100 100 00  
A. C. Peachy.....61 100 100 00  
A. C. Peachy.....62 100 100 00  
A. C. Peachy.....63 100 100 00  
A. C. Peachy.....64 100 100 00  
A. C. Peachy.....65 101 101 00  
John McFadden.....11 50 50 00  
John McFadden.....10 100 100 00  
John McFadden.....22 25 25 00  
John McFadden.....15 25 25 00  
W. H. Cronise.....74 50 50 00  
And in accordance with law, and an order of the Board of Trustees, made on the 13th day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street, San Francisco, Cal., on the 23rd day of October, 1871, at the hour of 12 o'clock m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.  
Office, 409 California street (up stairs), San Francisco, Cal. oct-3w

**Gold Run Mining Company—Location of works, Gold Flat District, Nevada County, California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 5th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at their office, No. 325 Sansome street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 15th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 1st day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
C. C. PALMER, Secretary.  
Office, 325 Sansome street, San Francisco. se2-4w

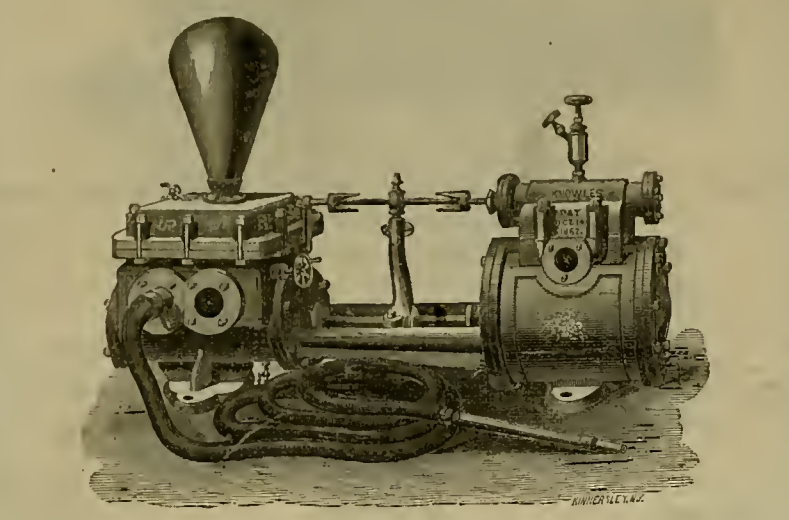
**Noonday Silver Mining Company—Location of works, White Pine Mining District, White Pine County, State of Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of October, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary of the company, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 7th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
JOS. PH. MAGUIRE, Secretary.  
Office, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. oct-1w

**North America Consolidated Mining Company—Location of works, White Pine county, State of Nevada.**  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 31st day of July, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Amt.  
Eaton, J. A. Trustee.....62 100 100 00  
Eaton, J. A. Trustee.....63 100 100 00  
Eaton, J. A. Trustee.....71 400 80 00  
Eaton, J. A. Trustee.....75 200 40 00  
Eaton, J. A. Trustee.....76 300 60 00  
Eaton, J. O. Peck.....78 100 20 00  
Lewis, J. F.....34 1000 200 00  
Lewis, J. F.....34 250 50 00  
Lee, G. B.....56 20 4 00  
Magge, J. E.....73 300 60 00  
Pinkham, S.....20 056 133 20  
Pinkham, S.....45 166 33 20  
Spinny, G. R.....12 666 133 20  
Spinny, G. R.....46 166 33 20  
And in accordance with law, and an order of the Board of Trustees, made on the 31st day of July, 1871, "and one subsequently made on account of postponement," so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on the 15th day of October, 1871, at the hour of 2 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. se2-3w

**Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the fourth (4th) day of September, A. D. 1871, an assessment (No. 1) of one dollar and twenty-five cents per share was levied on the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 418 California street, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 5th day of October, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock p. m. of Wednesday, the 8th day of November, A. D. 1871, will be sold to pay the delinquent assessment, together with the costs of advertising and expenses of sale.  
J. W. CLARK, Secretary.  
se2-4w

KNOWLES' PATENT STEAM PUMP.

Awarded First Premium and Diploma  
Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Premium and Diploma at State Fair, and Gold Medal Recommended.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.  
The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.  
The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.  
The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

**CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, CAL., April 14, 1871.**  
A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for stop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.  
Yours truly,  
A. J. STEVENS, General Master Mechanic.

**OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, OREGON, April 22, 1871.**  
Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.  
Yours respectfully,  
G. MARSHALL, Chief Engineer.

**OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.**  
Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.  
Yours very truly,  
C. P. HARM.

**OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.**  
Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.  
Yours very truly  
GEORGE M. REYNOLDS, Supt. Engineer.

**U. S. NAVY YARD, NEW YORK, June 3, 1871.**  
Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.  
Yours very respectfully,  
WM. W. WOOD.

**OFFICE OF THOMAS IRON WORKS, HOKENDAUCA, Pa., June 1, 1871.**  
Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are about the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.  
Respectfully yours, etc.,  
EDWIN MICKLEY, Supt. of Mines.

**OFFICE OF THE SAUCON IRON CO., HELLENSTOWN, Northampton County, Pa., May 26, 1871.**  
Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.  
Yours very respectfully,  
G. W. WHITAKER, President and Superintendent.

**OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1860.**  
Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 34-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of about of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.  
Yours very truly,  
P. SAULT, Superintendent.

**OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.**  
A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc.,  
JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND  
THE LARGEST STOCK OF PUMPS IN THE WORLD,  
And for Every Conceivable Purpose.  
A. L. FISH, Agent.  
No 6 First Street, San Francisco, Cal.  
P. S.—All kinds of new and second-hand Machines on hand. 24v22-eow

**Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado county, Cal.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 13th day of September, 1871, an assessment of three dollars (\$3) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23rd day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
D. A. JENNINGS, Secretary.  
Office, Room No. 25, 418 California street, San Francisco, California. se23-td

**Silver Sprout Mining Company—Location of works and mines, Kearsarge District, Inyo County, State of California.**  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 318 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. B. WILSON, Secretary.  
Office, No. 318 California street, San Francisco, Rooms Nos. 1 and 2, second floor. oct-4w

**St. Patrick Gold Mining Company—Location of works, Ophir District, Placer County, Cal.**  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Amount.  
Geo D Roberts.....13 100 500 00  
Geo D Roberts.....15 100 500 00  
J W Gashwiler.....25 100 500 00  
J W Gashwiler.....51 10 50 00  
John F Boyd.....35 50 250 00  
F A Hill, Trustee.....56 50 250 00  
F A Hill, Trustee.....59 100 500 00  
F A Hill, Trustee.....60 50 250 00  
F A Hill, Trustee.....81 50 250 00  
F A Hill, Trustee.....78 33 165 00  
F A Hill, Trustee.....81 100 500 00  
F A Hill, Trustee.....80 25 125 00  
F A Hill, Trustee.....89 200 1000 00  
W L Utick.....140 10 50 00  
Kate C Cronise.....64 25 125 00  
A O Peachy.....53 100 500 00  
A O Peachy.....79 100 500 00  
E A Richardson, Trustee 82 10 50 00  
E A Richardson, Trustee 84 5 25 00  
E A Richardson, Trustee 85 20 100 00  
E A Richardson, Trustee 98 300 1500 00  
E A Richardson, Trustee 99 50 250 00  
E A Richardson, Trustee 100 50 250 00  
E A Richardson, Trustee 101 300 1500 00  
E A Richardson, Trustee 102 200 1000 00  
E A Richardson, Trustee 103 10 50 00  
E A Richardson, Trustee 125 70 350 00  
E A Richardson, Trustee 127 10 50 00  
E A Richardson, Trustee 132 10 50 00  
E A Richardson, Trustee 136 7 35 00  
J Clem Uhlir, Trustee.....161 50 250 00  
J Clem Uhlir, Trustee.....162 50 250 00  
L Maynard.....110 10 50 00  
T B Straus, Trustee.....120 25 125 00  
J Straus, Trustee.....128 25 125 00  
J Straus, Trustee.....129 25 125 00  
J Straus, Trustee.....130 25 125 00  
J Straus, Trustee.....131 25 125 00  
O P Sutton, Trustee.....134 50 250 00  
H K Whit.....112 4 20 00  
T B Straus, Trustee.....143 25 125 00  
M Mayhurn.....72 5 25 00  
M Mayhurn.....114 10 50 00  
And in accordance with law, and an order of the Board of Trustees, made on the 16th day of August, 1871, so many shares of each parcel of stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street, San Francisco, State of California, on the 9th day of October, 1871, at the hour of 12 o'clock m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.  
Office, 409 California street (up stairs), San Francisco, California. sep23-3t

**Quail Hill Mining and Water Company—Location of works, Calaveras County, California.**  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Amt.  
W H V Cronise.....26 1 20 00  
W H Sharp.....28 1 20 00  
A E Hill, Trustee.....31 50 1000 00  
A E Hill, Trustee.....37 119 2380 00  
L F Loveland, Trustee.....36 60 1200 00  
A E Hill, Trustee.....39 120 2400 00  
A E Hill, Trustee.....40 7 140 00  
F S Spring, Trustee.....41 120 2400 00  
E F Dennison.....42 1 20 00  
And in accordance with law, and an order of the Board of Trustees, made on the 16th day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street (up stairs), San Francisco, Cal., on the 16th day of October, 1871, at the hour of 12 o'clock m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.  
Office, 409 California Street, San Francisco, Cal. se30-3w

**JOHN B. MORROW,**  
Machinist and Model Maker.  
Patent Office Models made with neatness and dispatch at Reasonable Rates. 247 Fourth street. oct4-1f

**Longshore's Combination Tool.**  
  
This device is just what its name indicates. As a Kitchen Tool it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c. It answers the double purpose of hammer and pliers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pliers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.  
WIESTER & CO.,  
17 New Montgomery street (Grand Hotel), SAN FRANCISCO.



## Machinists and Foundries.

ESTABLISHED 1861.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. HANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,  
MARINE AND STATIONARY,  
IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.  
Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S OLEBRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.

## FULTON

## Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

## STEAM ENGINES,

Quartz, Flour and Saw Mills,  
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-47

## GEORGE T. PRACY, MACHINE WORKS,

109 and 111 Mission Street,  
SAN FRANCISCO.



These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

## STEAM ENGINES,

Flour and Saw Mills,  
QUARTZ MACHINERY,  
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

## Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR  
Pracy's Celebrated Governor.  
TURNING LATHES, Etc., constantly on hand.  
4v23tf

## PACIFIC Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of  
RAILROAD AND OTHER IRON  
Every Variety of Shafting,

Embracing ALL SIZES of  
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

## HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.  
The highest price paid for Scrap Iron. 9v143m

## THOMPSON BROTHERS, EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,  
of every description, manufactured 24v16qr

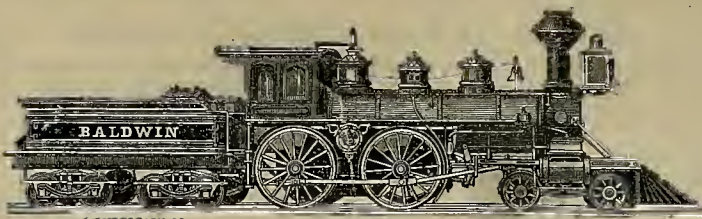
Miners' Foundry and Machine Works,  
CO-OPERATIVE,  
First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

7v23tf

I. L. MORTLHAP, President.

## BALDWIN LOCOMOTIVE WORKS.



M. BAIRD &amp; CO., Philadelphia,

## MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD, CHAS. T. PARRY, WM. P. HENSZLEY,  
GEO. BURNHAM, EDWARD H. WILLIAMS, EDWARD LONGSTRETH.  
WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francisco, Cal. apl-cow26t

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low  
Pressure

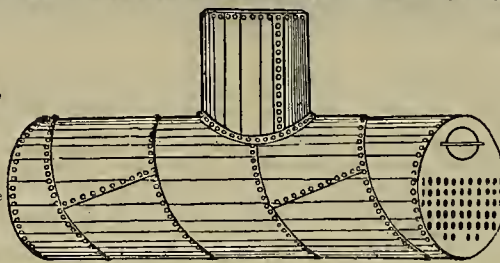
## BOILERS

of all descriptions.

SOLE

Manufacturers of the  
CELEBRATED

## SPIRAL BOILER.



Sheet Iron Work

of every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

J. O. CALDWELL,  
President.REESE LLEWELLYN,  
Superintendent.

## COLUMBIA

## Co-operative Foundry Company,

(INCORPORATED MARCH 16, 1871),

133 and 135 Beal Street, between Mission and Howard SAN FRANCISCO.

Manufacturers of  
MACHINERY AND CASTINGS  
of every description.

Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

## THE RISDON Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.  
CAPITAL.....\$1,000,000.

LOCATION OF WORKS:  
Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Wm. Alvord, C. J. Brenham, C. E. McLane,  
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,  
James D. Walker.

WM. H. TAYLOR.....President.  
C. E. McLANE.....Vice President.  
JOSEPH MOORE.....Superintendent.  
LEWIS R. MEAD.....Secretary.  
24v17-47

## UNION IRON WORKS, Sacramento.

WILLIAMS, ROOT &amp; NEILSON,

MANUFACTURERS OF

## STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

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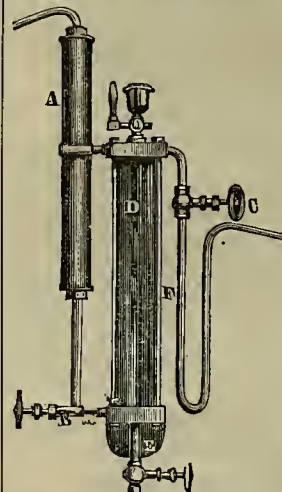
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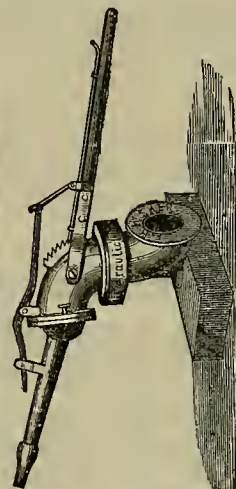
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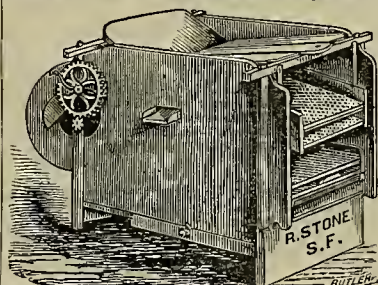
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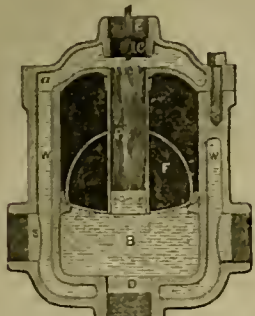
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Patent Condenser for Steam  
PUMPS, &c.



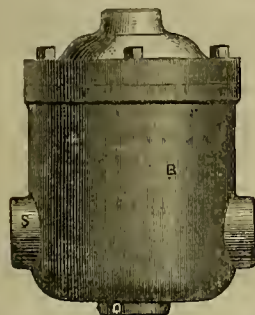
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

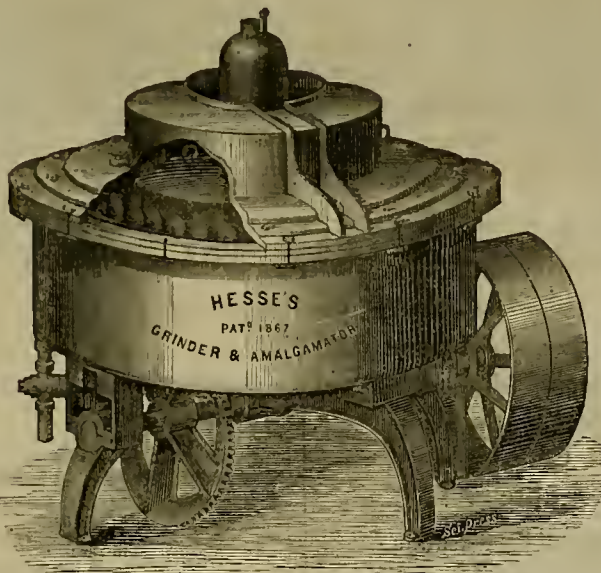
The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is especially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT, 6v23cowlly 128 Broadway, New York City.

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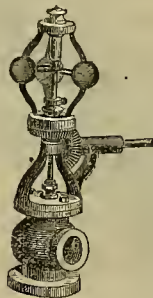
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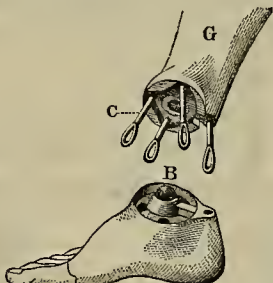
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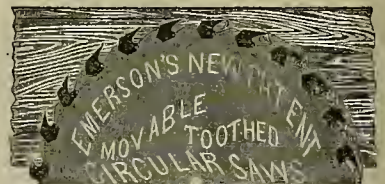
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# SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

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SAN FRANCISCO, SATURDAY, OCTOBER 14, 1871.

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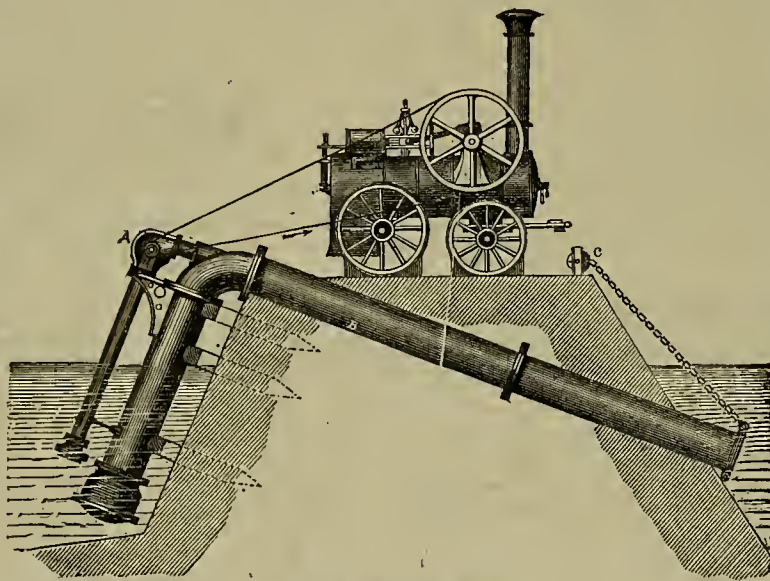
## GWYNNE'S DRAINAGE SIPHON.

The drainage of lands by means of pumping apparatus is a branch of engineering very fully developed in many countries of Europe; but in this it has not yet received the attention that at no very distant day must be accorded to it. The engraving which we here give from an English exchange represents a siphon—so-called—constructed by Messrs. Gwynne & Co., of London, and specially designed for drainage operations of minor or moderate magnitude. In the engraving, *B* is a siphon of ordinary construction, but having a flap-valve, opening inwards or upwards, attached to the inner end, and which prevents the water flowing back again. At the other end of the siphon another valve is fixed which opens outwards, and which is shown in the engraving closed by the chain, *C*. Attached to the siphon is one of Messrs. Gwynne's centrifugal pumps, having a separate suction pipe and valve dipping into the water, and its discharge pipe secured to and emptying into the siphon, *B*. To start the siphon, the pump is put in motion by the portable engine, the air-cock is opened, and as the siphon fills with water, all the air is quickly displaced. The air-valve is then closed, and on the chain, *C*, being unfastened, the outer valve will open, and the siphon will discharge water in the usual way and at the ordinary velocity. By keeping the pump at work, however, an increased discharge of water is obtained through the siphon, the increase being in proportion to the velocity with which the water is discharged by the pump. This increased quantity is additional to the actual water forced into the siphon by the pump. By this arrangement the siphon can be made to act even when the water on each side of the hank is at the same level. One pump may be made to charge or fill a number of siphons if placed near each other, and, instead of the portable steam engine, the pump itself can be driven by hand, horse, or any other power, or even by a turbine driven by the discharge from one of the siphons, where the difference in the level of the water justifies such an arrangement.

For keeping low-lying lands, for example those inclosed by dykes, from the accumulation of water from rain upon them, a power to work the apparatus will of course be required proportionate to the rain-fall. A few statistics, therefore, of the rain-fall of different countries will give an idea of the variations in the power required in various regions to maintain a pumping apparatus in operation for a given area. The greatest rain-fall in England in 24 hours may be taken at three inches, and the annual rain-fall at from 20 inches to 70 inches, and the mean may be taken at 42 inches. For London, 24 inches; Rome, 36 inches; Paris, 21 inches; Liverpool, 34 inches; Kendal, Westmoreland, 60 inches; St. Petersburg, 16 inches; Upsal, 26 inches; India—in the plains—from 50 inches to 70 inches, and in the

hills, 130 inches. At the Capo, 23 inches; Tasmania, 25 inches; in the Southern States of North America, about 46 inches. The greatest evaporation in 24 hours in India is about 0.56 inch, and the mean daily evaporation 0.22; the mean daily evaporation in England may be taken as 0.08 inch. In England, drains and sewers should be constructed large enough to carry off one inch of rain per hour—i. e., 60 cubic feet of water per minute per acre, where heavy falls of rain take place, as during thunder storms, etc.

In England it is assumed that for the drainage of fens and low-lying districts an engine of from twelve to sixteen horsepower is sufficient to keep dry a thousand acres of land, provided the lift does not exceed ten feet. Our climate being more



GWYNNE'S DRAINAGE SIPHON.

dry than that of the British Islands, this estimate would doubtless be found within bounds for similar operations in this country.

The land reclamation movements now going on in this State, will eventually call for something of this kind. Indeed, the city of Sacramento has already expended large sums of money for drainage purposes, with a result which we should suppose might have been accomplished at a much reduced cost by the employment of the principle here described. We are indebted to the *American Artisan* for the above illustration.

**DODGE CRUSHER.**—A gentleman in Montana wishes to know the address of the manufacturer of the above named ore crusher. We believe it is made in the Eastern States. As the patentee does not advertise in the mining states, we will publish his address if some friend will find and send it.

**THE GOLDEN STATE Iron Works** are making some large hydraulic and screw presses for the vineyards of Eberhardt and Lachman.

## Reduced Charges for Milling Ores.

**EDS. PRESS:**—The improved methods of roasting ores of late years have led the way to greater progress in milling than the world had made in the last three hundred years; and still the call is loud for inventive genius to step forward and make its mark higher on the scale of advance. In this place the roasting of ores in the old reverberatory furnace costs on an average \$15 per ton; by the Stetefeldt process \$5.45; by the White revolving furnace \$2.30. The miners here have long been asking for a reduction in the charges for milling. The price had gradually fallen from \$80 to \$35, but this did not satisfy the demand, and as one company had purchased the exclusive right to use

first-class mining school where the practical and scientific branches shall be thoroughly taught. Then a graduate of such a school will be able to analyze all the ores and be perfectly versed in the best processes of working them. On this point more anon.

We have here, as there is almost everywhere, a large class of low-grade ores that will not work over \$40 per ton, and are very anxious to see the citizen's mill a success. In the meantime the Pacific Co. has just received another of White's furnaces which is somewhat improved, and they will soon have it running in the Medium mill, where it will be likely to receive good treatment. A report of its result will be looked for with interest. The Manhattan Co. are fortunate in having an excellent mechanic, who, from time to time has been making improvements upon the machinery, so that now their twenty stamp mill reduces thirty tons a day. They have just erected new pans, retorts, and smelting rooms, which does great credit to their worthy engineer. For neatness, convenience, and efficiency, the old Manhattan stands to-day without a rival. A marked feature of the new improvements, is that special regard has been paid to the health of the workmen. A. CHASE.

Austin, Nevada, Sept. 28th, 1871.

**MINING MAP OF UTAH.**—We received from Mr. Froiseth, some time since, a new mining map of Utah, and inadvertently omitted to mention it. It is a very valuable map to those interested in mines in that section of country and is well gotten up. It is drawn on a scale of 4 miles to an inch, showing the Railroads completed and projected, and the line of the Utah Central with its branch to the Cottonwood mines. It shows also the boundaries of 28 organized mining districts, and the locations of a few of the principal mines in each. It is compiled from the latest United States surveys and other authentic sources. This map has been of great use to us in our office and we recommend it to our readers as a very convenient reference. These maps are for sale by Roman & Co., in this city, or by the publisher, B. A. M. Froiseth, Salt Lake City, Utah.

**THE YELLOW STONE COUNTRY,** according to our correspondent W. H. M., is believed to be a fine agricultural, as well as mineral section, but the Indians are so bad that it is unsafe for parties to venture there unless accompanied by soldiers, or in numbers sufficient to protect themselves. The section contains some of the wonders of the world, which we at this late day are just discovering. The Northern Pacific Railroad which will pass through that part of the country, will do much to develop its resources, and give miners a chance to prospect, and tourists an opportunity to visit and explore.

**NOT CARRIED OUT.**—When in Washington in May last, Commissioner Leggett, informed us of the intention of the office to supply each inventor for the term of six months after his patent issued with full copies of all patents, issuing in the same class as his own. We predicted at the time of publishing our notice of such intention, that we did not deem the idea a practical one, and we now have to inform our readers that it has never been carried out by the department.

This mill has just completed its first month's run, but with what success it is difficult to learn. The furnace worked well, if anything, too well, for it turned or partly fluxed the ore. It produced very fine hullion, but for reasons best known to the stockholders it is now standing idle. Rumor says that they have sustained considerable loss. The faults in the construction of the mill are small and can be easily remedied. One would think that it would require acquaintance with this new kind of a furnace, or skill would have to be acquired by making tests in speed of revolution, degree of heat, and both combined.

The fact is, we must have in this State a



## MECHANICAL PROGRESS.

### Destructive Effect of Salt on Axles.

The London papers give accounts of several accidents occasioned by the fracture of the axles of salt cars. It appears that between the sound portion remaining and the outside of the fractured axle the surfaces were quite smooth, presenting the appearance of having been severed by a sharp instrument. This peculiar effect is thought to have been caused by the gradual action of the brine on the metal, the heat at the boss favoring the evolution of chlorine from the brine, and its then combining with the iron to form a soluble chloride of iron. From the position of the defect it was not discoverable by any ordinary inspection; and, whatever may be the scientific explanation of the peculiar destructive action which thus goes on in the axles of salt cars, the fact must be regarded as a very serious one—especially in view of the statement made that on one railway alone, no less than seven axles of salt cars were broken while running, in a period of less than three months, and this out of a total number of about five hundred wagons, showing an enormously large proportion, as compared with the fracture of cars of any other description of rolling stock. To diminish this liability, the plan has been proposed that, in addition to requiring such cars to be provided with well-constructed axles of good quality, it also be insisted that the date of their commencing to run be stamped upon the axles, and that a reasonable number of years be prescribed as the maximum of their being used.

**A NEW AND VALUABLE PAVEMENT.**—Prof. Wurtz, of Mass., recently introduced to the scientific world a new asphaltic pavement, under the name of Grahamicite. It was subjected to severe tests in the presence of eminent engineers. The experiments proved that it would stand a pressure twenty times greater than that required to crush granite. It was exceedingly tough and slightly plastic. From recommendations made by gentlemen who witnessed these experiments, a pavement of about two hundred feet in length was ordered to be laid on the Battery, from the foot of Whitehall street to a point opposite the wharf, where heavy stones used in building the Post Office are unloaded. The pavement was finished several weeks ago. Since then enormous loads of stone have been drawn over the pavement, during the most trying part of the year. The more it is used the harder and smoother it becomes. It is gray in color, and clean and pleasant to the eye. It can be made to stand a heat of 500 degrees without softening. In the sunshine the pavement was so hot that it was painful to hold the palm of the hand on it. Hard blows were struck with a heavy hammer in the face of the composition. It was like pounding a well-seasoned slab of sole leather with a broad-headed hammer. It is claimed that this pavement is the cheapest and most durable ever invented. Thousands of yards can be laid in a day.

**THE FUTURE IRON CENTER OF AMERICA.**—Dr. Gustav Kluppel, an eminent German metallurgist, has been examining the iron works of America and reporting his observations in a German technical journal. He ridicules the anxiety of American ironmasters for pure coal, feeling confident that the ordinary bituminous coal of the West as well as the East would be available for use in blast furnaces if properly coked. Of the natural advantages of St. Louis and vicinity for iron manufactures, he says:—"As the railroad bridge over the Mississippi, opposite St. Louis, will be completed within a year, there is nothing in the way of the iron manufacture, including the blast furnaces, settling near East St. Louis in the immediate vicinity of the coal mines. Here both coal and ore are to be had cheaper than in Westphalia, for instance; and as St. Louis, in relation to England, possesses a natural protective tariff of \$8 to \$9 per ton, (\$4 to \$5 more than the Atlantic States), it may well be affirmed that here is the soundest foundation in the country for all branches of the iron manufacture, from pig iron to Bessemer steel.

The ivory keys to pianos or melodeons, when yellow, may be rendered white again by sponging them with diluted sulphurous acid and exposed to the sun.

### A New Partition Wall.

A new kind of wall is coming into use in England, the advantages claimed for which are the very important ones of non-absorbency of moisture, non-conduction of heat, economy of space, a washable surface, and, withal, cheapness. Over a framework of strong cross-wires, of about one-eighth of an inch in thickness, there is woven, by a powerful pressure, fibrous matter, which is saturated with a solution that renders it fire-proof. It is then subjected to a very powerful pressure. A coating of light Scott's cement is then put upon it for inside facing, and of Portland cement for outside facing. By this means surfaces are made impermeable to moisture, smooth and easily washed with water, thus saving the expense of repeated lims washings. It is formed into slabs in iron frames, which are put together and closely and securely fastened with bolts. The slabs are from one and half inch to four inches thick. They serve as superior paneling for dividing walls and partitions. Where space is of importance, it has the advantage, perhaps, over concrete walling, in enabling a wall to be made of not more than one and a half inch or two inches in thickness, and yet its quality is said to greatly deaden sound.

**THE LIFE OF A LOCOMOTIVE.**—In regard to the durability of English railway work, it is stated that the life of a locomotive boiler has been found to be about 350,000 train miles, and on some lines this has been extended to four hundred and even five hundred thousand miles. The wear and tear depends of course greatly on local circumstances, and particularly on the chemical qualities of the water employed. Assuming that the life of the engine is determined by the endurance of the boiler, and that under favorable circumstances it will last five hundred thousand miles, then, during that time, the fire box will probably require renewal at least three times, the tires of the wheels five or perhaps six times, the crank axles three or four times, and the tubes from seven to ten times, with the best possible material and construction presumed to be used in each case. Similar statistics from the life of American locomotives would be of interest. In one case lately published, that of a locomotive on the Pennsylvania Railroad, built by the Baldwin Locomotive Works, we believe actual data gave the number of miles as exceeding the amount stated above.—*Iron Age.*

**MODEL RAILWAY MANAGEMENT.**—On the Michigan Central road, for over 16 years past, not a drop of blood has been drawn from man, woman or child inside the cars, and just now the *modus operandi* is especially important. At all hours of the day and night there sits an operator in the Kalamazoo station (midway of the line), who receives telegrams from each train on the road the instant it enters or leaves a station, so that he holds or starts it at will. His eye is literally making a collision next to an impossibility, and the immense single track quite equivalent, so far as safety is concerned, to the double track roads. The 12 and 16 wheel coaches, admitting of the breaking of any one of the wheels without disabling the track, constitute also no small item in this aggregate of immunity from peril.—*Railway Times.*

IMMENSE quantities of cast iron nails are manufactured in Staffordshire, England. Over a 1,000 tons of iron are annually consumed for this particular industry. The appliances for casting are so well perfected that one hand can produce 750,000 nails of the smallest size in a day, while 52,000 of the larger size can be made in the same period. The mold contains large numbers of connected forms for the nails, and the latter hang together when removed therefrom, and are broken apart. They are subsequently tempered in oxide of iron and made malleable.

**NEW PROCESS FOR SILVERING MIRRORS.**—A plate of glass measuring 100 superficial feet was recently silvered at St. Helier's Lancashire, England, by a new process, by which the mirror was completed in forty hours, instead of ten days, which would have been required according to the old methods. This mirror, it is stated, is the largest ever manufactured in Lancashire, and with one or two exceptions, the largest ever made in England.

**ACTION OF FROST ON RAILS.**—Contrary to popular belief, a technical journal says, steel rails are less effected by frost than are iron ones. The Grand Trunk Railway, after five years' trial of steel rails, laid sixty miles of them last year, which have stood well. This year eighty-five miles more are to be put down.

## SCIENTIFIC PROGRESS.

**THE ANALYSIS OF TEA.**—Tea contains several characteristics, which are seldom taken into account, in addition to its usual 5 per cent. of them or thereabout. Iron forms a very important constituent, as does also manganese and potassa. The leaves of the tea plant give about 5.63 per cent. of ashes, of which 4.04 are soluble from the leaf and may be found in the extract. The extract therefore is very rich in inorganic compounds; especially in phosphoric acid, but they contain only a little potassa. Old tea leaves contain much lime but little potassa and phosphoric acid. Of a young tea more than  $\frac{1}{2}$  will go in the extract, of old leaves much less. The above observations are the result of some recent investigations as reported in *Annalen der Chemie.*

**NEW PROCESS OF OBTAINING A CEMENT WITH THE SCORIE OF BLAST-FURNACES.**—One part of these slags in fine powder is sprinkled and agitated in a suitable vessel, with two parts of an equal mixture of hydrochloric acid (35 per cent. HCl) and water. The slags decompose, a lively disengagement of HS taking place. The mass finally forms a thick jelly, from which water removes the chloride completely. After removing these, the residue is dried and reduced to an impalpable powder; one part of this powder, intimately mixed with 9 parts of slag in powder, gives an excellent cement in water or air as it may be desirable to apply it. The composition of the slags from which the best cement is obtained should be about as follows:—Essential elements—Silicic acid, 40.28; clayey earths, 15.13; calcareous earths, 36.24; non-essential elements—manganese, oxide of iron, alkalies, etc., 8.35=100.

**PHOTOGRAPH PRINTING IN COLORS.** is effected by mixing the colors with a solution of bichromate of potash, spreading the color thus mixed over the surface to be printed, and exposing it to light under the negative. The spots where the color is not fixed by the decomposition of the bichromate, may be washed off, of course as many negatives must be used as colors are intended to be used, and the parts which are not to receive any of a given color, are to be carefully covered in the negative for that color. This process may be used on textile fabrics, glass, etc. The articles to receive the picture should be covered with a varnish of gum damar in benzine, to which a little alcohol has been added, to prevent cracking.—*Philadelphia Photographer.*

**EFFECT OF AN ECLIPSE OF THE SUN ON THE MAGNETIC NEEDLE.**—It is a well known fact that the magnetic condition of the earth is disturbed during displays of the Aurora Borealis, and is manifest from the irregular movements of the magnetic needle on such occasions. Other extraterrestrial causes may also produce similar disturbances. It was observed on the 22d of last December that the magnetic needle followed its usual course till the commencement of the solar eclipse which occurred on that day. With the beginning of the eclipse it retraced its steps until it reached its minimum declination at 1 hour 58 minutes, which was the instant of totality. From that moment the ascending motion toward the west began anew, until the needle had regained the exact position it had occupied when the eclipse began.

**VINEGAR FROM WINE.**—It having been observed that wine when left to stand in contact with the air, usually turns to vinegar after a certain lapse of time, but the water in which a little alcohol has been mixed never became vinegar, though exposed to the same conditions; M. Pasteur has recently made researches on the subject, and discovered that this change is due to the presence of a small plant in the wine—the *Mycoderma Aceti*. Taking advantage of the knowledge of this fact M. Breton Langier has instituted a large vinegar factory in which, bearing the fact carefully in mind, vinegar can be made more rapidly and cheaply than before.

**ARTIFICIAL AZURITE.** has been formed by Messrs. Wehel & Tuengel, by enclosing gypsum and the green carbonate of copper in sealed tubes for several months. Intensely blue crystals of azurite, together with crystals of sulphate of lime were obtained.

**ANALYSIS OF CUNDURANGO.**—The new plant—whose extract or decoction is said to effect such wonderful cures in cases of cancer, has been analyzed by Dr. Antisell, chemist to the Agricultural Bureau at Washington. The doctor finds this ratio of the wood to the bark to be as 50:28 to 49:72. The centesimal composition of this bark was as follows: Moisture expelled at 212 Fah., 8; ash matters or mineral salts, 12; vegetable substances, 80. The vegetable matters were separated and found to be composed as follows: Fatty matters, soluble in ether and partly in strong alcohol, 0.7; yellow resin, soluble in alcohol, 2.7; gum and glucose from starch, 0.5; tannin, yellow and brown coloring matters (extracted) 12.6; cellulose, lignin, etc., 63.5; total, 80. No crystalline alkaloid could be detected, and according to the above results, the therapeutic position of the plant must be among the aromatic bitters.

**ROARING OF AURORA BOREALIS.**—M. Becquerel read, at one of the last meetings of the Academy of Science of Paris, a paper on the Celestial Origin of Atmospheric Electricity, and he concluded by stating that the auroras result from discharges of this electricity, and thus he explained the roaring, more or less loud, heard by the inhabitants of polar regions. Most scientific men deny the occurrence of these sounds, but M. Becquerel, in support of his opinion, quoted the observations of Paul Rohrer, aeronaut, who started from Paris in December last, and descended 14 hours after in Norway, on Mount Ide, at an elevation of 4,000 feet: "I saw through a thin fog the moving of the brilliant rays of an aurora borealis, spreading all over its strange light. Soon after an incomprehensible and loud roaring was heard, which, when it ceased completely, was followed by a strong smell of sulphur, almost suffocating.

The doctrine that a uniform temperature of thirty-nine degrees prevails at a certain and considerable ocean depth is fast being abandoned, in consequence of the recent researches of Dr. Carpenter and others. It was supposed to derive support from the thermometric observations made in Sir James Ross's Antarctic expedition. Since then, however, it has been conclusively proved that no ordinary thermometers, such as the instruments with which those observations were made, can resist the pressure amounting to a ton upon each square inch, for 800 fathoms of depth to which they are subjected, in deep-sea soundings. Thermometers, protected by a simple arrangement devised by the late Professor W. A. Miller, whereby a pressure of even three tons to the square inch would produce no perceptible effect, are now used.

**FLOATING OF SOLID IRON ON MOLTEN IRON.**—The following explanation seems reasonable, and is accepted by many foundrymen and others. According to the dynamical theory of heat, the molecules or particles of heated metals are in a state of great agitation, and the higher the temperature, the intenser the molecular motion. The difference in the specific gravity of melted and solid cast iron being slight (as 31 to 32 nearly,) this constant and fierce movement of the particles of the former, prevents a block of the latter from sinking. An analogous action is found in swift running streams or eddies, upon which bodies of considerably greater gravity than water are supported for a long time and also in the partial suspension of an egg in boiling water.—*Scientific American.*

It has been asserted by some scientists that animals do not suffer so much under parallel injuries as man. Horses so badly hurt that their leg bones have been found protruding through the skin, and actually in contact with the ground as they walked along, having been known to begin to graze almost as soon as they were left to themselves. Of course in such a case the horse must feel some pain; but it must be immeasurably less than that which a man would suffer in a like condition. We cannot, for instance, believe it possible that a man could sit quietly down to dinner just after having his leg broken; yet that would be a parallel case.

**TEST FOR GALVANIZED IRON.**—When zinc is deposited on iron by galvanic agency, it should form a chemical combination with the iron, and not be merely attached thereto. It is proposed by Mr. T. Bruce Warren, of England, to use this fact for practically testing the efficiency of the galvanization. If mercury be poured over the surface, the zinc that is only locally attached will form an amalgam with the mercury. Mr. Warren also uses this as a quantitative test, to verify the amount of zinc in combination with the iron.



# CORRESPONDENCE.

## SAN DIEGO MINES.

EDITORS PRESS:—I cannot at present give you anything like an elaborate report of mines in this county, as it would take more space in your paper, and more time than I could afford. Suffice it to say, that after having 18 years' experience in quartz mining in the States of California and Nevada, and many of the Territories, that there are richer mines, and more of them, in the Banner and Julian Districts, than I have ever seen in the same number of miles in any other country.

The formation of the country rock, and the veins of quartz show a peculiarity not found elsewhere. The country rock is talcose-slate; but in many of the mines, granite forms the foot wall and slate the hanging wall; such is the formation of the

### Golden Chariot.

one of the richest mines that I have ever seen. A run of 30 tons, imperfectly worked in the McMechan mill, paid \$154 per ton. The above mine has been opened by a shaft about 90 feet, showing a well-defined vein of quartz, from 2 to 4 feet wide, that will undoubtedly pay \$200 per ton when practically worked. The vein is opened in many places by open cuts and shafts, which prove, beyond a question, that it is a permanent fissure vein. I am informed that the owners intend erecting reduction works in a very short time.

### The Ready Relief,

owned by the Bailey brothers, is very much like the Gregory mine in Colorado. The only difference that I see is, the Gregory is in granite, while the Ready Relief is in slate. The same class of ore predominates, containing pyrites of iron and copper; antimony, arsenic and plumbago. The above mine is well located for working purposes, and they are now running a tunnel which will tap the lode 300 feet below the surface. There are also good facilities for milling, there being a fine stream of water, high enough to supply the mill tanks without pumping, and the same power will do the milling and hoisting from the mine. The vein is from 2 to 4 feet wide, and the indications are that it will increase in size at a greater depth. The ore from the above mine is very refractory, and needs roasting. By roasting in bulk before crushing, which was done imperfectly, it paid in an arrastra an average of \$28 per ton.

### The Redman Mine

joins the Ready Relief, and is of the same formation. The vein at the depth of 80 feet is stratified, but from appearance will concentrate, and form a wide and permanent vein. The same difficulty occurs in working the Redman ore, that I have mentioned regarding the Ready Relief, and consequently it is worked with little profit to the owners.

### The Kentuck

mine is yielding the richest ore that I have seen for years. I was shown specimens yesterday by Mr. M. A. Lewis, the Supt., which weighed from fifty to one hundred pounds, which were spangled with free gold. The vein is from one to three feet wide, and is a valuable mine.

### The Antelope Company

have struck the main lode, which is yielding very rich ore. The mine is worked by shafts and open cuts, and in every place, shows a rich, and permanent vein. The company have kept their five stamp mill running, and notwithstanding the difficulties which they had to contend with, in opening up their lode, building mill, etc., the mine has paid for all, now being in good shape to take out ore. I am in hopes ere long, to see them rewarded for their industry, and perseverance.

### The Madden Company

are also taking out rich ore. Foul air has prevented work upon this mine for a few days, but they have managed to counteract it, and will resume work this week. There are many other mines which I would like to mention, but space prevents me from doing so this time. I hope ere long to see men of means take hold of mines in this county, which will, when properly worked, pay as large dividends as any in the State of California in proportion to the investments required to develop them. All that is wanting to make the mine in this locality a success, is the proper machinery to work the refractory ores and practical men to work them judiciously. J. M. T. Banner Dist., Sept. 27th, 1871.

## About the Loss of Quicksilver.

EDITORS PRESS.—The proposition of A. B. Paul, published in your issue of Sept. 23d, is no doubt a generous one and made in good faith; but there are several reasons why he or the public will not be likely to realize much from such an arrangement as his offer indicates.

In the first instance, those whose experience is of any value will be likely to consider over so little time worse than thrown away, if it unlocks their particular knowledge-box, for gratuitous information. A. B. P. knows, and if he is half as astute as he appears, that this is particularly the age of jockeyisms, and any mining or milling expert will have a quiet laugh to himself at the idea of relinquishing his particular secret, or tit-bit of experience, that has any economical bearing upon the working of ores by the use of quicksilver.

The writer of this, at one time, worked Savage and Gould & Curry ores, in competition with other millmen, and succeeded in making a saving in excess of any of the competitors; but making no secret of the processes used by underhand manipulations, the promised preferment was lost, and others with less scruples got the rock to work. Again, when the Gould & Curry mill was working fourteen dollar ore, he saved from their tailings with his own unassisted labor, in six months' time, over \$10,000; but did the skill or experience required for such an operation avail anything with capitalists or mill-owners? Not much! They only ridiculed the idea of a poor laborer teaching them anything.

Fortunately or unfortunately, as the case may apply, the writer has learned that there is something of as much value as capital, and that is the life and health of the working man.

It has often pained the writer to see the waste of health and vigor in the saving of so base a substance as quicksilver. How many thousands of poor wretches are incapacitated from the useful labor yearly by inhaling the fatal fumes from roasting ores, and in the retorting and amalgamating departments of metallurgy?

The proposition of A. B. P. reminds us of a little fabulous circumstance that may or may not apply.

There are hundreds of sharp jockeys who are ready to pay a medicine of the value of any undeveloped "Flora Temple," or "Captain Jinks," that the unsophisticated owner may be willing to warrant to "sweep the stakes;" but when A. B. P. gets 24 others to make a clean breast of their hard-earned, and dear-bought experience in the savings of the metals, the writer solemnly pledges himself to go and do likewise. F. M. S.

## Decision Respecting Trade-Marks.

A suit involving interesting legal points respecting the present law of trade marks, was recently decided in the Equity Court, for the Washington District. It was instituted by Joseph Rodgers & Sons, the celebrated cutlers, of Sheffield, England, against Phillips and Solomons, the stationers who have the contract for supplying the Treasury Department with Rodgers & Son's penknives, erasers, etc. The complainant alleged that the defendants had been selling imitation knives bearing the counterfeit of their trade-mark. The defendants did not deny the sale of these imitation knives, but alleged that they were manufactured in Germany by a firm known as Rogers & Sons, who have a Royal license from the Prussian Government for a trade-mark similar to that of Rodgers & Sons of England, and have long been imported and sold in this country. They furthermore contend that plaintiffs cannot maintain their suit, in view of the fact that they have not registered their trade-mark in the U. S. Patent Office, as provided for in the Act of Congress on the subject, passed in July last. A decision was rendered overruling and denying an injunction as prayed for by the plaintiffs, on the ground that the English firm had, by their neglect for a series of years to enforce such rights as they are possessed of, under the trade-mark law in this country, waived the right to call upon the courts for assistance. The firm which made the cutlery had also a right to use the trade-mark in Prussia, where the goods were manufactured.

## A Philosopher's Stone for Employers.

It is said that John Randolph once rose suddenly up in his seat in the House of Representatives and screamed out at the top of his shrill voice: "Mr. Speaker! I have discovered the Philosopher's Stone. It is—Pay as you go!"

In all the searches after the Philosopher's Stone, we know of none more successful than this. In all the walks of life nothing more true or valuable can be said than "Pay as you go."

We propose, at present, to apply this merely to the case of employer and workman. Between the two arise many a trouble from many a cause. It is often very difficult to say which is in the right. Frequently, as in all other things, the right is on both sides. But the opinion of the world is apt to favor the employer in the generality of cases.

The workman always has many reasons, stronger or weaker, for complaint. And one of these, only too often, is delay or failure to pay his wages. We often hear the folly and wickedness of strikes dwelt on. Concerning this subject we do not wish now to argue. We merely assert that the employer has no more right to delay paying his men's wages, when due, than the men have to strike and prevent others from taking their places.

We doubt not that many a strike has had its origin, in part, at least, in a delay of the pay which is due the men. We know of many a case on this Coast, as well as elsewhere, where the miner, farmer or mechanic cannot obtain his dues from his employer. If a man cannot pay his workmen, he has no right to engage their services, and cannot complain, in justice, if they take action to secure their rights.

When a workman's wages fall due, they are his property. To withhold them is therefore only one species of robbery, where the law cannot be applied to without injury to the employer. The man often cannot appeal at all, without danger of permanent injury to himself; often social opinion would deter him from attempting to secure his rights. And so he is obliged to suffer without any redress.

The labor question is getting to be an important one now-a-days. Both sides should be heard and judged impartially, and we think that this one item should receive more attention than it has. Whereupon we call upon employers to think of Randolph's Philosopher's stone—Pay as you go!

**SALMON THINNING OUT.**—It is said that the supply of salmon in the Sacramento is perceptibly diminishing. In past years fishing-boats would bring in as the result of a day's labor from a score to a hundred fish, but now from eight to a dozen is the limit; that the fish caught are principally females, filled with spawn, on their way to headwaters to deposit their eggs. Why should not the protection of the law be accorded to the salmon as well as to trout and mallard ducks? From June to November, at least, it should be prohibited to capture salmon fish else soon these prized and nourishing finny invaders in California's greatest river will disappear. What representative of a river county will first move in this matter of growing importance—the preservation of internal fishery interests?

**THE CALIFORNIA COTTON GROWER'S ASSOCIATION** recently appointed a committee consisting of Messrs. James D. Johnston, Robert Plunkett and James B. Johnston, to visit and examine a tract of land, near Bakersfield, in Kern county, offered to the Association as suitable for their proposed cotton plantation. The committee having visited and examined the same, and reported favorably upon its adaptability for the purpose proposed, the Association will undoubtedly locate there.

Bakersfield is located upon what is known as Kern Island, a rich and well watered region, some 80 miles below Visalia, and about 328 from this city, with which it will soon be put in direct railroad connection. Upwards of 20,000 acres of land will be included in the purchase. The successful issue of the Merced cotton experiment, will do much to give confidence to this new operation.

## BOOK NOTICES.

**How to GET RICH.**—A Pamphlet by Uncle Ben. 28 pages. C. M. Cornwell, 247 Pearl St., New York.

This little pamphlet was written for the express purpose of showing beginners in life the one way by which they may become rich. We say the one way, because it is the only way which is open to all and in which there is no necessity for failure. In ordinary business pursuits all men cannot succeed. There are always some lacking in ability; some who never seem to rise. In other occupations the general opinion is that the third or fourth rate man must be content to remain poor. Nobody expects laborers to become rich or even to accumulate a competency for old age. But "Uncle Ben," in this pamphlet, shows how every one who has common sense enough to earn a living, may in time, by properly employing the saving banks, gain sufficient wealth to at least furnish a comfortable income for old age.

In proof of the correctness of his views, and to show how easily the thing may be done, he points to his own case. Fifteen years since without a penny in the world he began to make his way in New York with a modest salary. From the beginning he began to make a weekly deposit in the savings bank, and now his income from the money so deposited is greater than the salary he received when he first came to the city. The figures which he presents are startling, showing as they do how perfectly simple it is to obtain enough to satisfy any man of reasonable desires.

For instance, if between the ages of 20 and 60, a man puts a dollar per week into the savings bank, he will at the end of that time have \$8,413.12, which invested at seven per cent. would give about \$50 per month. In California banks, amounts would be nearly doubled, as the above figures are calculated for six per cent only.

If this little pamphlet would be circulated all over the country it would be of immense value to all classes. Could our boys be taught the proper use of the savings bank there would be very few of them, who at attaining their majority would not have sufficient money at least to go into business for themselves.

Men in New York city, who have this matter at heart have made arrangements to distribute these, as tracts, everywhere. The saving banks all over the country, are buying them for gratuitous distribution and are thus helping along the work. The pamphlets are sold at \$75 for 5,000 copies, just about the price of the paper and printing. This also includes pinning one page of advertising for the institution ordering.

We feel the greater interest in this matter as it has been taken up entirely from benevolent motives and without expectation of pecuniary reward. The first edition, together with the printing and electrotyping, was entirely at the author's expense, being, as he termed it, a sort of thank-offering for his success in life. We understand that the printer fills orders for any quantity at the price we have named.

**The American Odd Fellow** for September is upon our table. Though it is the organ of the great secret society whose name it bears, yet we find in it a great deal of rich and spicy matter of interest to the general reader. In typographical appearance it ranks with the first in the country. The magazine deserves a large circulation, not only within the order but among the outsiders. It is published by the American Odd Fellow Association, 96 Nassau Street, New York.

**THE ALVARADO BEET SUGAR Co.** have commenced digging the second crop of beets, and the work of sugar making from the native product is now well under way again. According to the *Alta* the supply of beets will this year reach 800 tons (16 tons to the acre). The juice has been tested and found to yield most satisfactorily. The amount of sugar made last year was only 500,000 pounds. This year it is expected to reach 1,125,000. This will occupy the mill about five months; the balance of the year will be occupied in refining imported sugar.



## MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

### California.

#### ALPINE COUNTY.

**BARNES-BURROUGHS' MINE.**—*Alpine Chronicle*, Sept. 30th: This is located in Hope Valley and is better known as the "Billy Bodger's," and Hope Valley. E. Barnes, of Petaluma, having purchased the interests of his partners has sold an interest to Dr. Moore, of S. F. Last week 16 men commenced building roads, cutting, wood making coal pits, etc., preparatory to resumption of work on the mine. Machinery for hoisting works is on the way from Reno, and will be at the mine in a few days. A large force will be put on as soon as the present work is finished. This is a silver mine, and the ore, by mill process pays well.

**SUSPENDED.**—Work on the Glohe has been suspended for a few days, awaiting the arrival of a more powerful pump, daily expected.

**MONITOR MINER.**, Sept. 30th: The Exchequer has several hundred tons of pay ore out which will soon be run through the mill. The Monitor mill will soon have stamps in and he pounding away on pay ore, the mine being fully able to keep it supplied from the start. The Glohe mine is to have steam hoisting works put on at once, which will enable this company to go down on the ledge and take out its rich copper ore. The Schenectady mill will be enclosed here for stormy weather sets in, and employ a large force all the way through.

#### CALAVERAS COUNTY.

**SALE OF A QUARTZ MINE.**—*Calaveras Chronicle* Oct. 7th: A controlling interest in the noted "Poe" mine, at Railroad Flat has been sold to Adams & Co., of Sacramento. The terms are these: Adams & Co. are to have full control of the lead, erect the necessary machinery and thoroughly develop the mine, Mr. Poe retaining a third interest. The ledge, so far as prospected, has proved a good one. A shaft has been sunk to the depth of 80 feet, the rock taken from it is paying well.

**CORRAL FLAT.**—Champion Co.'s claim is paying between 7 and \$8. per day to the hand.

**AN OLD MINE REOPENED.**—Recently work has been commenced in the tunnel claim on the western face of the Stockton Hill, known as the "Ruthroff mine." The tunnel is about 1,100 feet in length.

**THE UNION COPPER MINE.**—*Stockton Republican*, Oct. 4th: The prospects are that work on a large scale will soon be resumed at the Union Copper Mine, Copperopolis, a gentleman having gone east to make an arrangement to that effect with the owners.

#### EL DORADO COUNTY.

**ANOTHER QUARTZ MILL.**—*Marysville Appeal*, Oct. 8th: The St. Lawrence Co., of Georgetown, are about to erect a 20 stamp quartz mill, with double hoisting works, at their mine. The contract has been given and the work has already been commenced. Two engines, one of 30 and one of 60 horse-power have been contracted for, together with the hoisting works, with everything complete, including the latest and most approved machinery for working the rock.

#### MARIPOSA COUNTY.

**RICH POCKET.**—*Mariposa Gazette*, Oct. 6th: Morgan & Co., last week struck a pocket in their quartz claim near Hornitos, which yielded them \$3,000. These rich strikes are getting to be quite common around Hornitos.

#### NAPA COUNTY.

**MINING CO. ORGANIZED.**—*Calistoga Tribune*, Oct. 5th: The Calistoga Quicksilver M. As. organized on the 28th of Aug., have elected the following officers: Pres. W. Patterson; Treas., J. A. Chesbro; Sec., W. P. Litten. Directors—A. C. Palmer, J. A. Chesbro, and Wm. Patterson. The object is to work a quicksilver mine in the Lake M. Dist., about 10 miles from Calistoga, on the north side of St. Helena Mt., near the Mt. Mill House. The mines are now being worked, and a tunnel has been run a distance of 70 ft. The ore taken out thus far is exceedingly rich—large quantities of quicksilver being obtained. The ledge appears to be well defined.

#### NEVADA COUNTY.

**HOISTING WORKS BURNED.**—*Nevada Transcript*, Oct. 7th: The works and buildings of the Manhattan M. Co. on Gold Flat, were totally destroyed by fire on Thursday night. The fire caught from a spark from the smoke stack and spread very rapidly.

The horse and a quantity of wood were destroyed and the engine burned. The loss is \$1,500, upon which there is no insurance.

**THE EUREKA MINE.**—The mine was shut down for the annual repairs to the incline and tunnels. It is expected the mine will be ready for work again in a week or ten days.

**GOOD ROCK.**—The Orleans at Gold Flat are getting out some excellent quartz in the lower level of the mine. The ledge is well defined, and the prospects of the company are excellent.

**A NEW LEAD.**—*G. V. Union*, Oct. 7th: Hunt and Talbot, were fortunate in striking a ledge in the vicinity of the Seven Thirty mine a short time since—which promises well. Nine loads of rock crushed at the Gold Hill mill yielded \$1,300, or \$145 per load, and another crushing will soon be made, the rock showing as well in gold as that already worked.

**KNIGHT OF MALTA LEDGE.**—*Caruana & Co.* are working on the Knight of Malta ledge, with good prospects of developing a paying mine. The ledge has been sunk upon a distance of about 40 ft. and a drift, at that depth, has been run eastwardly for 20 ft. The ledge in the drift is strong and bears mineral heavily. We saw some specimens which show well in sulphurets and also in free gold. The ledge in the drift is not less than 3 ft. thick in any part, and in places it is 6 ft. thick. The company have now on the surface of the ground about 20 tons of rock. The St. John Quartz M. Co., as the Co. working the ledge is called, has been prospecting for about 4 years in the vicinity of the Knight of Malta ledge.

#### PLACER COUNTY.

**QUARTZ MILL BURNED.**—*Auburn Stars and Stripes*, Oct. 5th: The Empire quartz mill, located between Ophir and Doty's Flat, was destroyed by fire last week. The fire was the result of incendiarism. A new steam fire engine of 30-horse power had just been set up in the mill, which escaped from the fire with slight damage. A man named Truesdale, was badly burned about the upper portions of his body, so as to require medical treatment. The destroyed property was owned by the St. Patrick Co.

**GOLD DUST** to the amount of 84 ounces, valued at \$1,575 was shipped on Monday last from Michigan Bluff, to W. H. Watson, Sec. of the Yule Gravel Co., San Francisco, said sum being the yield of the above named claim for the week ending Sept. 30th, with 8 drifters and 2 carmen at work, and a draw-back of a considerable percentage of what is known among miners as "dead work"—i. e. in "squaring up," "straightening track" and the like. Owing to these draw-backs, the above yield represents but 52 days' work in the actual operations of taking out and washing pay dirt, which is over \$30 per day to the hand.

#### SIERRA COUNTY.

**INDEPENDENCE MINE.**—*Grass Valley Union*, Oct. 4th: A sale of this old mine, situated at the Downieville Buttes, was made, a short time since, for a valuable consideration, to an English Co.

#### TRINITY COUNTY.

**WEAVERVILLE JOURNAL**, Oct. 7th: Silcox is running his quartz mill on Indian Creek and reports the prospects as very flattering, and improving.

**CANON CITY.**—Cor. same: P. Slattery has taken a contract to dig a ditch 20 miles in length from the little East Fork of Cañon Creek to Hyke's Hill, for D. McElduff, and intends to have it done by the time water comes.

**C. Dannin** is getting a very large lot of iron pipe to lay across Red Flat for hydraulic purposes, and will have some 250 ft. pressure. This claim is 80 or 100 ft. in depth, and is a good paying one.

**J. A. Burger** has finished sluicing for the season, and has so far taken out \$8,000 and has not cleaned any bed rock. This claim is from 20 to 60 ft. deep, and pays all over it.

**Wilt & Porter** are still sluicing. **Murphy & Mathewson** have found better prospects than they have had for years.

### Nevada.

#### COPE DISTRICT.

**RAILROAD DIST.**—*Elko Independent*, Oct. 7th: The Hussey tunnel has tapped several veins of good ore from which shipments are made. From Last Chance, copper shipments of ore for several weeks have been steadily on the increase. The Lee mine is a perfectly defined lode, in which over 4,000 tons of ore are now in sight.

**COPE DIST.**—The Independence and Ku Klux show as fine a large body of ore as was ever milled. The Independence crushed 8 tons from the top and realized \$25,000. Two mills in Mt. City are running on ore from Bull Run dist.

**COAL.**—Negotiations are pending for the sale of the property of the Penn. Coal Co., situated about 30 miles to the north-east of Elko.

#### EUREKA DISTRICT.

**OFFER REJECTED.**—*Eureka Sentinel*, Oct. 6th: The owners of the Golden Gate mine have refused a large offer for it. Capital desired to purchase. Negotiations are now pending with a view towards its sale.

The furnaces are in full blast and the hullion is rolling out in large quantities.

**METROPOLITAN MILL.**—A considerable portion of the machinery is on the ground, and the balance will be delivered in a few days. The work will be completed and in running order by the 1st of Dec. The mill is to have 3 batteries carrying each 5 stamps.

**STRIKE.**—A rich strike has been made by one of the owners of the Enterprise mine, near the head of N. Y. Cañon. Samples of the ore assayed \$208.82 silver, and \$118.04 in gold. The vein is about 7 ft. wide, and gives evidence of permanency.

**STILL IMPROVING.**—The body of ore recently in the Adams & Farren portion of the Co.'s property, is widening and improving as explorations are extended.

#### ELY DISTRICT.

**BULLION.**—*Ely Record*, Oct. 6th: For the quarter ending Sept. 30th, the shipments were \$996,500. For 4 days ending Oct. 5th the shipments were 23 bars valued at \$56,913.01.

**ASSAYED.**—J. Cahill has assayed, from Sept. 14th to 29th, for the Raymond & Ely Co., hullion valued at \$82,637.90.

**RAYMOND AND ELY MINES.**—The immense body of ore struck in the Lightener shaft, on the Panaca ground, still continues to improve as the developments proceed. At present there are 250 tons of first-class ore on the dumps, which will mill an average of over \$300 per ton. The steam engine, to be used in hoisting at the above shaft, is on the way and will be in position and running before the end of the month. Sinking is going on in both the Burk and Creole shafts, and in the former a good streak of ore is making its appearance. The proceeds of the mill for Sept. are over \$200,000—\$10,000 to the stamp.

**WASHINGTON.**—The Supt. has purchased all the Washington ground—600 ft. and is at work upon it. Indications are flattering in the extreme.

**LILLIAN HALL.**—The work on the located shafts has been commenced and is pushed rapidly forward. Indications are extremely good.

**AMERICAN FLAG.**—Work will shortly be resumed. The mine is one of the finest in the dist. so far as developed.

**MEADOW VALLEY EXTENSION.**—Everything is looking remarkably well and prospects are flattering. There are about 1,000 tons of rich ore on the dump, but none has been crushed, owing to the scarcity of milling facilities. The shaft is down 300 ft. and prospecting is going on at the bottom and on the 200 ft. level with promising indications in all newly opened places, and a good ledge in all the different openings.

#### HUMBOLDT.

**BULLION SHIPMENT.**—*Unionville Silver State*, Sept. 7th: The amount of hullion shipped from the Arizona mine, since our last issue, was \$7,729.

**SHIPPING ORE.**—*Marrietta M. Co.* in Central dist. will ship next week 10 tons of ore to San Francisco.

**PROSPECTORS.**—The Humboldt and adjacent ranges of mountains are swarming with active, eager prospectors. From the results thus far achieved it is safe to say that the year 1871 will prove far more satisfactory, in the general progress and development of our mineral resources than that of any year that has preceded it. All the old mines, which were discovered and located in the early days of the Humboldt mining excitement, most of which were afterward abandoned, are now being again relocated and work resumed where it was left off years ago. In a large number of cases where work has been resumed, but a small amount of labor has been performed, when the most astonishing results have followed.

**GALENA.**—During the past 6 weeks work has been vigorously prosecuted in the Monitor mine. The vein commences 30 ft. from the surface, and is of uniform thickness to the bottom of the shaft—a distance of 30 ft.—making the shaft 60 ft. deep.

**BRUNSWICK.**—*Carson Register*, Oct. 6th: Work on the new Brunswick mill, ditch and dam is progressing rapidly; 52 carpenters are employed. The new dam is nearly completed. The capacity of the ditch has been increased about 60 per cent., and the

canal will, when completed, (within 2 weeks) carry enough water to drive 55 stamps.

#### REESE RIVER.

**RICH STRIKE.**—*Austin Reveille*, Oct. 6th: A new discovery has been made about 4 miles from what has been known as Jefferson Dist., about 12 miles from Belmont.

The formation in which the new ledges are found is porphyry, on the west of which is slate. The largest ledge yet discovered is called the Jefferson. The ledge dips to the east gradually, and is fully 15 ft. in width. Assays from the croppings have run from \$320 to \$1,600.

The Prussian, near the western slope, of the same ridge, is 4 ft. wide where the croppings have been broken, and a specimen from the croppings assayed \$1,900. Many other ledges have been located and are reported to be fabulously rich.

**YANKEE BLADE.**—Forty chloriders are at work in this section, nearly all getting good ore.

**MAGNOLIA.**—Five different leases for as many parts of the mine have been let.

**CAMARGO.**—*Manhattan Co.* are opening this mine, taking out the water, etc., preparatory to the commencement of work on the ledge.

**LONE STAR.**—The lessees are taking out about a ton of ore per day that will average very nearly \$1,000 a ton, and this has been going on for about a month.

There is a good donkey on the mine, plenty of ore in sight.

**OUTSIDE ORES.**—*Manhattan Co.* have lately worked for Plunkett and Brannan two lots of ore from Montezuma Dist. One lot of 5½ tons yielded at the rate of \$400 per ton, and the other \$377 per ton.

They have worked 4½ tons of ore from the same district for W. H. Carpenter, and returned \$305.50 per ton.

#### WASHOE.

**MONTHLY BULLION SHIPMENT.**—*Virginia Enterprise*, Oct. 8th: The shipment of hullion for Sept. was 526 bars, weighing 34,190 lbs and valued at \$190,054.16 to S. F. This light shipment is owing to the great scarcity of water, which has compelled many millmen to "hang up" altogether or to run but a small part of their machinery.

**CHOLLAR POTOMI.**—This mine yielded 490 tons of ore last week, assays averaging \$30 per ton.

**DANEY MINE.**—The Co. are engaged in running a drift for their lead at the 400 ft. level. The drift is in about 20 ft. They expect to cut the vein at a distance of 150 ft. At the same time that this drift is being driven in they are preparing to sink their main shaft an additional 100 ft. when a second shaft will be started for the lead and a level at the depth of 500 ft.

**WOODWORTH MILL.**—This is one of the finest mills in the State of its size. It will soon be capable of crushing about 70 tons of ore per day.

**A VAST DEPOSIT OF ORE.**—The great deposit of rich ore in the Crown Point and Belcher mines, as far as developed, is of the following dimensions: 533 ft. in length, from 50 to 70 ft. in width, and is known to be 300 ft. in depth; that is, beginning at the 900 ft. level, it has been explored as far as the 1,200 ft. level, where it appears to grow wider and stronger in every respect. The ore from the Belcher is singularly rich in gold—the bars running from 88 to 96 fine in gold, while those from the Yellow Jacket are but from 28 to 32 fins in gold.

**HALE AND NORCROSS.**—The work of re-timbering the engine shaft is now completed to within 681 ft. of the surface.

All the mills on Gold Cañon, except 2 or 3 that are out of repair, are now running to their utmost capacity.

**OPHIR MINE.**—The Co. have not been sinking in their new shaft since this day before yesterday, having ceased operations in the bottom of the shaft for the purpose of putting in a new and more powerful engine. They are also engaged in putting in a pump and tank on the 900 ft. level. The shaft is now down 1,080 ft.; when it has been sunk 20 ft. further—that is, when it shall have obtained 1,100 ft.—another pump and tank will be put in, and the same at the further depth of 200 ft.—that is, at the depth of 1,300 ft.—from which point they will start a drift for their lead.

**SERIOUS ACCIDENT.**—Yesterday afternoon, Thomas Cocking met with a serious accident at the Ophir mine. He was leaving the shaft at the 400 ft. station, when the cage suddenly started up, the sharp corner of the iron frame catching him in the right cheek and splitting it open for a distance of about 5 inches.

**A PAIR OF MULES LIVING AND WORKING 1,100 FT. UNDER GROUND.**—Night before last a second mule was lowered into the howels of the earth for use on the 1,100-ft. level of the Belcher mine. The one



aken down a few days since is still below, and is working satisfactorily.

**THE STURTEVANT** lode on the crown of the hill west from the Mammoth is the richest gold lode we have seen in the dist. and is a strong true vein. It assays at the rate of \$1,300 in gold, and about 25 oz. in silver per ton. The main shaft is 23 ft. and work progressing.

**THE ELEPHANT** is one of the mammoth veins of Cariboo Hill, with black sulphurets in a soft white gangue, with a 6 foot crevice easily mined.

**THE MONITOR** is well-cribbed to the depth of 64 feet.

**MINERAL POINT DIST.**—The Amanda bears a high reputation for rich ores; the last assay from a galeous specimen, runs at the rate of \$3,763 per ton.

**CENTRAL Herald**, Oct. 4th: J. Mellor, working the Lervitt mine at Mountain City, is having some fine looking ore crushed at Mellor & Borum's mill. Ten stamps are running on this quartz, 5 on surface ore from Russell, and 5 on different lots.

This week Kimbor & Co.'s Polar Star mill runs one battery on Cooper and one on Mazepa ore from Russell, one on California, 3 batteries on Prize and 1 on several different lots of ore.

The Black Hawk Co. keeps 85 stamps in motion on custom ores.

The N. Y. mill is running on Nevada ores. Sullivan & Wheeler's new 25 stamp mill is completed.

The Smith & Parmelee mill is running on Fiske and other ores.

Work is being prosecuted in the Bohtail tunnel.

The English Kansas M. Co. is energetically working the property purchased of J. F. Hardesty; 40 men are employed.

Ur Chicago creek, Mr. Groy on the Cypress has opened up a fine vein of mineral from 3 to 7 inches in width and worth \$500 per ton.

B. S. BUELL is steadily working the Illinois which supplies the 22 stamp mill above with sufficient ore to keep it running without intermission. Three cords are crushed daily. At 230 feet the distance between walls is 6 feet thick and the other one of 6 inches, with the space between filled with mill ore. The quartz raised is superior to that ever obtained from this vein.

SULLIVAN & WHEELER are running 40 stamps in the New York mill on Kansas ore.

LYON'S claim on the Kansas lode is yielding better ore than at any time during the month. Drifting and sloping is going ahead on 2 levels, at 100 and 250 ft. below surface. In the lower level there is 3 ft. of smelting and mill ore.

**ITEMS.**—Georgetown Union, Oct. 3d; Purtle & Co. are working the Alabama and are taking out 600 oz. ore....Phoenix lode, on Sherman Mt. has been leased.... Another mill run of two tons of Comet ore yielded at the rate of \$271.70 coin per ton....Crowley & Co. are working in the rich slide ground and have struck a rich lode. The mineral taken out, about one ton, is worth 1,082 ozs....A new discovery has been made on McClellan Mt. by H. C. Bates. The name is Overland, and the surface rock assays \$8,549 per ton....Fix & Co. are working the Munsel. The first-class ore taken out of this mine is worth by mill treatment, \$840 coin per ton.... Work is being actively carried on in the Silver Plume lode, with paying results.... Hill & Clemens have leased the Equator dump pile and the west half of the Equator mine. They are working over the dump pile by sluicing and are obtaining remunerative results. The ore saved is worth 841 ozs. per ton....Mining has been commenced on the east end of the Cashier lode, Sherman Mt. A drift is being run to tap the shaft already sunk....The Pelican lode is being actively worked by a large force. The ore continues as rich as ever....The Capt. Wells lode, on Sherman Mt. is being opened in several places. The ore is of good quality and is found in fair quantity in all parts of the lode....Webster & Ames are working the Cayuga lode and taking out mineral worth 380 ozs. They are also working the Soneca lode, the ore of which is worth, by mill treatment, 555 ozs.... The last mill run of Matilda Fletcher ore gave \$799 coin per ton in silver.

**Arizona.**

**SHRENBURG.**—Tucson Citizen, Sept. 23d: M. Ravena has made an arrangement with an English Co. to work his mine. Work will commence this fall. J. Frank & Co., of the Constancia mine, have a mill on the road.

**DISCOVERY.**—A discovery at Sarica, Sonora, Mex., is said to be gold in quartz, very rich.

**Colorado.**

**SHIPPED.**—Clear Creek Co., eor. Central Register, Oct. 4th: Palmer & Nichols shipped to-day a silver brick of 1,515½ ozs., 888 fine; \$1,739.95 coin value. On the 29th, another weighing 1,495.35 ozs., 777, fine \$1,502.23 coin value, and on the 15th, one weighing 1,419 80-1,000 ozs., 911 fine, coin value \$1,707.

**Stewart Reducing Co.** shipped, on the 28th, silver brick weighing 1,051 ozs., 804 fine, \$1,100 coin. And on the 15th, one weighing 1,170 ozs., 878 fine; coin value, \$1,328. The total shipments for the week ending Oct. 3d, amounted to \$4,027.49 coin.

**BOULDER Co.**—J. C. Miller and W. Snyder, have made a discovery on Cariboo Hill, and named it the Illinois. Tests of the best ore gave \$300 per ton.

The Cariboo mine is yielding better than ever before. They have 7 ft. of black sulphur ore, which will assay \$1,000 per ton.

Centt & Breed are pushing the work on the mill rapidly. They expect to run in about 3 weeks.

A few days ago a nugget of native silver, weighing 18 dwts., was taken from the "Western Slope," near the "Blue Bird."

The last assay of ore from the Idaho silver lode, Idaho Hill, gave \$850 in silver. Main shaft down 75 ft.

The main shaft of the Central is down 25 ft.

**MAMMOTH LODE**, near Cardinal, north from the Boulder Co., is vigorously worked by Dr. Hopkins. He has a complement of men in 3 shafts.

**Idaho.**

**ACROSS BASIN ITEMS.**—Idaho World, Sept. 28th: At Pioneer City B. Willson is still engaged in mining on Orleans Bar. The hank is from 20 to 25 feet deep, with gravel nearly at the top, and the bed-rock looks splendidly.

Stephenson & Co. have suspended operations on their claim above Pioneer City; the scarcity of water has caused a general cessation of mining in that section. Clarkson & Brown have shut down their quartz mill on account of the scarcity of water, but are still engaged in taking ore from the mine.

**DISCOVERY.**—A quartz lode was discovered at Granite Creek, on the 22d inst., by C. Clark; which promises rich. The ledge is 4½ ft. wide.

**Montana.**

**GERMAN GULCH.**—Deer Lodge Independent, Sept. 30th: Sluice robbing is a frequent occurrence. Estelle & Holland on the Cliff Extension are sinking a shaft and are down 29 ft. at which point the ledge is 8 ft. thick and the ore will average about \$100 per ton. Mr. Horton has a number of men working on the Alka ledge and is taking out first class ore in considerable quantities. Landers & Harps are successfully working ores by the Freiberg process. The old Stuart mill will soon be in operation.

**REDUCTION WORKS AT JEFFERSON.**—Helena Herald, Sept. 28th: A company has been organized in Chicago with a capital of \$75,000, and will at once commence the erection of Reduction and Smelting Works.

2,300 oz. of gold dust equal to \$46,000 in currency is the net result of a 6 weeks' run on W. Roe's claim at Pike's Peak, and is only about one-third of the gross amount which he has taken out during the season.

**Oregon.**

**MOSS AGATES.**—Portland Oregonian, Sept. 30th: Moss Agates have been discovered lately near the Warm Springs Indian Reservation in considerable quantities. A Mr. Dunbar writes: The strata are underlaid and covered by volcanic sandstone and tuffs containing the petrified bones of extinct tertiary animals. They are found one mile above here along the huffs of Chit like to two miles below. They are also found on the Te-mo-le-ons or Willow Creek, some 25 miles from here.

**Utah.**

**BULLION.**—S. L. Tribune, Oct. 5th: W. F. & Co. forwarded to N. Y. on the 1st, 15 bars of Pioche bullion, worth \$42,832.66, from the works of Raymond & Ely, and received from same place on the 4th, 8 bars, worth \$11,332.32.

**BATEMAN & BUEL AT WORK.**—These gentlemen have purchased the Tecoma mine in Lucine dist., for \$125,000 coin, and are rushing up a furnace on the site very fast. The Tecoma is a galena mine resembling the Flagstaff in Cottonwood, but thought to be a much more extensive body of mineral.

**Mining Stock Market.**

THURSDAY EVE., Oct. 12th, 1871.

Stocks last week were unusually active, but irregular, closing at a decline for most descriptions; over 700 tons of ore were taken from the Chollar-Potosi mine last week, assaying \$41.08 per ton. From the Belcher 2,000 tons were crushed in September, yielding \$161.103. The Reports from Crown Point and Raymond & Ely show improvement in supply and class of ore. receipts from the Meadow Valley mine for September were \$150,641. First shipment in October, \$10,400. Tuesday, stocks were low under increased demand for money, and the feverish condition of financial circles incident to the calamity in Chicago. The session of the Board yesterday was larger than usual, owing to the discussion of the great fire. The Board very generously donated, and forwarded to the Mayor of Chicago, \$8,000. Stocks came up again a little, owing to increase of confidence in financial circles. Stocks were generally firm this morning, with a fair degree of activity for these addicted to paying dividends.

**Comparative Prices, Extreme, Advance and Decline.**

Alpha.....	Oct 5. Highest.	Lowest.	Oct 12. Adv.	Dec.
Amador.....	31½	18½	15	— 3½
Belcher.....	330	398	329	6 —
Chollar-Potosi.....	30	30½	24½	32 — 2
Cons. Virginia.....	10	30	27½	30½ — 5
Crown Point.....	310	310	270	305 —
Danely.....	7	8	5	—
Empire Mill.....	21	25	17½	26 — 5
Eureka Cons.....	21	25	17½	26 — 5
Golden Chariot.....	—	128	165	113 — 8
Gold & Curry.....	121	95	92	3½ —
Hale & Norcross.....	—	35	32	3½ —
Ida Elmore.....	4	4½	32	42 — 1
Imperial.....	43	41½	32	42 — 1
Kentuck.....	172½	175	145	175 — 2½
Mammoth.....	30	40	40	—
Meadow Valley.....	32½	35	31	32 — ½
Occidental.....	24	23	22	25 — 1
Ophir.....	24	7½	65	7½ — ½
Org. Hid Treas.....	—	49	15	32 — 5½
Overman.....	38½	39	35	42½ —
Savage.....	—	49	35	42½ —
Santa Nevada.....	—	113	31	—
Silver Wave.....	—	62½	54½	61 — 1½
Yellow Jacket.....	62½	62½	54½	61 — 1½

**Latest Prices.**

BID.	ASKED.	BID.	ASKED.		
Alpha Cons.....	14	15	Ida Elmore.....	34	34½
Amador.....	18½	19	Imperial.....	41	42½
Belcher.....	330	330	Kentuck.....	165	175
Chollar-Potosi.....	31½	32	Meadow Valley.....	31	32
Crown Point.....	300	305	Ophir.....	24	25
Danely.....	7	8	Org. Hid Treas.....	49	50
Eureka Cons.....	25	26	Overman.....	30	32
Eureka.....	15	19	Savage.....	42	42½
Golden Chariot.....	121	128	S. L. Pacific.....	—	37
Gold & Curry.....	112	113	Santa Nevada.....	—	113
Hale & Norcross.....	—	—	Yellow Jacket.....	60½	61

**Mining Shareholders' Directory—Meetings, Assessments and Dividends.**

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

**ASSESSMENTS**

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	DAY
Argenta S. M. Co., Nev., Sept. 4, \$5.....	Oct. 7	Oct. 28
Alameda Coal M. Co., Cal., Sept. 7, 50c.....	Oct. 9	Oct. 30
Bellevue, Placer Co., Cal., Aug. 30, \$1.....	Oct. 3	Oct. 23
Buckeye, Lyon Co., Nev., Sept. 11, 50c.....	Oct. 10	Nov. 3
Danely & S. M. Co., Nev., Oct. 21, \$2.....	Oct. 25	Nov. 18
Empire Mill & M. Co., Nev., Aug. 23, \$12.....	Oct. 27	Oct. 17
Gen. Lee S. M. Co. W. P., Aug. 25, 10c.....	Sept. 29	Oct. 13
Gold Run M. Co., Cal., Sept. 6, 25c.....	Oct. 10	Nov. 1
Golden Chariot, Sept. 12, \$5.....	Sept. 23	Nov. 13
Hale & Norcross, Nev., Sept. 28, \$15.....	Nov. 12	Nov. 22
Ontario & Nevada, Va. City, Aug. 21, \$10.....	Sept. 22	Nov. 13
Highland S. M. Co., Nev., Oct. 31, \$2.....	Nov. 13	Nov. 23
Imperial, G. Hill, Sept. 21, \$10.....	Oct. 24	Nov. 11
Jackson, Lander Co., Aug. 30, 25c.....	Oct. 4	Oct. 24
Julia, Storey Co., Nev., Aug. 31, 50c.....	Oct. 4	Oct. 23
Mahogany G. & S. M. Co., L. T., Sept. 4, \$3.....	Oct. 12	Oct. 23
Metropolitan M. Co., Nev., Sept. 11, \$1.50.....	Oct. 16	Nov. 2
Nevada Land & M. Co., Nev., Oct. 12, 4c.....	Nov. 12	Dec. 4
North American M. Co., Nev., Oct. 31, 20c.....	Sept. 28	Oct. 18
Org. Hid Treas., W. P., July 6, \$2.....	Oct. 31	Nov. 22
Overman, Nev., Sept. 22, \$4.....	Oct. 28	Nov. 16
Phoenix, Lander Co., Nev., Sept. 27, 50c.....	Nov. 1	Nov. 21
Piermont, W. P., Sept. 4, \$1.....	Nov. 9	Dec. 8
Poachontas G. M. Co., Cal., Sept. 18, \$3.....	Oct. 23	Nov. 27
Quail Hill M. & W. Co., Aug. 15, \$20.....	Sept. 27	Oct. 16
Silver Wave, W. P., Pine, W. P., Sept. 27, \$1.....	Oct. 7	Nov. 5
St. Louis M. Co., Nev., Sept. 5, \$3.....	Oct. 9	Oct. 25
St. Louis M. Co., Placer Co., Sept. 23, 50c.....	Oct. 25	Nov. 13
Tecumseh G. S. & C. M. Co., J. L., Sept. 23, \$1.....	Sept. 23	Nov. 13
Union, Sierra Co., Cal., Sept. 22, \$1.....	Oct. 23	Nov. 13
Washington & Creole, Nev., Sept. 21, 50c.....	Oct. 30	Nov. 25

**MEETINGS TO BE HELD.**

Eureka.....	Annual Meeting, Oct. 19
Exchequer.....	Annual Meeting, Oct. 16
Ohio G. M. Co.....	Meeting, Oct. 23
Peter Walter.....	Annual Meeting, Oct. 12
South Chariot.....	Annual Meeting, Oct. 16
Southern Gold Hill M. Co.....	Meeting, Oct. 11
U. S. Grant G. and S. M. Co.....	Annual Meeting, Oct. 14

**LATEST DIVIDENDS—(Within Three Months).**

Black Diamond Coal M. Co.....	Payable Sept. 15
Chollar Potosi, \$1.....	Payable Sept. 9
Chollar-Potosi, \$1.....	Payable Oct. 10
Eureka Cons., \$1.....	Payable Sept. 20
Keystone M. Co., \$2.....	Payable Sept. 16
Meadow Valley, \$1.....	Payable July 15
Meadow Valley, \$1.....	Payable Sept. 15
Meadow Valley, \$1.50.....	Payable Oct. 13
Natoma, div., 1 per cent.....	Payable Aug. 5
Natoma.....	Payable Oct. 5
Pioche S. M. Co., \$1.....	Payable Sept. 15
Raymond & Ely, \$1.50.....	Payable Sept. 15
Redington, 1 per cent.....	Payable Aug. 16
Succor Mill and M. Co., 50c.....	Payable Sept. 15
Succor Mill and M. Co., 50c.....	Payable Oct. 16
Yule Gravel, 60 cts.....	Payable Aug. 4
Yule Gravel M. Co., 50c.....	Payable Oct. 5
Yule Gravel M. Co., 50c.....	Payable Oct. 14

\*Advertised in this journal.

THE VISALLA-DELTA has been recently enlarged, and is now one of the largest, best printed and most extensively circulated local weeklies in California. A new job press and material have lately been added to the office to meet the wants of a thrifty and growing community in one of the most promising agricultural districts of the State. E. M. Dewey, proprietor.

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 25th, 477 7th Ave., New York Good work at high prices if desired. 21v1-12mbp

**New Incorporations.**

The following have filed certificates with the County Clerk, San Francisco:

**KNOCKEDOCKER MINING Co.**—Capital Stock, \$2,400,000 in 24,000 shares. Trustees: B. T. Sherwood, J. E. De la Montague, E. Strother, J. Maguire and H. H. Flagg.

**GREENHORN GOLD M. Co.**—Capital Stock, \$1,200,000. Trustees: I. N. Gashwiler, Thos. Bell, Jos. Clark, J. T. Boyd and N. Thompson, Jr.

**PIOCHE WEST EXTENSION M. Co.**—Capital Stock, \$3,500,000 in 35,000 shares. Trustees: Thos. Bell, L. Maynard, J. H. Baird, A. J. Bowie, Jr., and M. J. McDonald.

**SPRING MOUNT M. Co.**—Capital Stock, \$3,500,000 in 35,000 shares. Trustees: L. Maynard, H. A. Lyons, Thos. Bell, I. N. Gashwiler and O. D. O'Sullivan.

**Leather Market Report.**

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

**SOLE LEATHER.**—Eastern shipments still keep the market firm and the demand good.

City Tanned Leather, \$10 00/100 00  
Santa Cruz Leather, \$10 00/100 00  
Country Leather, \$10 00/100 00

French stock comes in more freely, and prices are easier in leading skins. The cheaper grades still continue firm. Calf and calf skins are still scarce and high.

Jeans, 8 Kil., per doz..... 84 00/85 00  
Jeans, 10 Kil., per doz..... 80 00/80 00  
Jeans, 12 Kil., per doz..... 72 00/72 00  
Jeans, 14 Kil., per doz..... 68 00/68 00  
Jeans, 16 Kil., per doz..... 64 00/64 00  
Jeans, 18 Kil., per doz..... 60 00/60 00  
Jeans, 20 Kil., per doz..... 56 00/56 00  
Jeans, 22 Kil., per doz..... 52 00/52 00  
Jeans, 24 Kil., per doz..... 48 00/48 00  
Jeans, 26 Kil., per doz..... 44 00/44 00  
Jeans, 28 Kil., per doz..... 40 00/40 00  
Jeans, 30 Kil., per doz..... 36 00/36 00  
Jeans, 32 Kil., per doz..... 32 00/32 00  
Jeans, 34 Kil., per doz..... 28 00/28 00  
Jeans, 36 Kil., per doz..... 24 00/24 00  
Jeans, 38 Kil., per doz..... 20 00/20 00  
Jeans, 40 Kil., per doz..... 16 00/16 00  
Jeans, 42 Kil., per doz..... 12 00/12 00  
Jeans, 44 Kil., per doz..... 8 00/8 00  
Jeans, 46 Kil., per doz..... 4 00/4 00  
Jeans, 48 Kil., per doz..... 0 00/0 00

Success in business—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24 Post street, San Francisco. This is the only college on the Pacific Coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading cities of the United States and Canada. There are many interesting features about the school which cannot be discussed here. Call at the College and examine its workings. If unable, send for circular, and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address E. P. HEALD, President, Business College, San Francisco, Cal. 10v23bp-3m

**EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.**

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but only doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this article, they have produced a Cocoa which they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by St. Grocers, of whom also may be had Taylor Brothers' Original Homoeopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. 1e25-ly

**N. Seibert's Eureka Lubricators for steam cylinders** are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8v23-3a

**UNIVERSITY OF CALIFORNIA.**—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught.

Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TAIT, Oakland, Master Fifth Class. 8e3b7f

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-stand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

**CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.**

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## NOTICES OF RECENT PATENTS.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

**BEDSTEAD.**—E. T. Barlow, San Francisco. This invention relates to an improved device for fastening the side rails of a bedstead to the head and foot posts, and for other similar fastenings, and it consists of two plates, each of which has one end formed into a hook. One of these plates is fastened to the upper edge of the rail, and extends beyond so that its hooked end shall enter an upward curving recess in the post. The other plate hooks into a similar recess in the post at the bottom of the rail, and is forced upward against the bottom of the rail and then secured, thus binding the rail firmly between the two plates.

**NOZZLE FOR OIL-CANS.**—Sharron P. Doane, San Francisco, Cal. This improvement consists, first, in the employment of a wire gauze partition through which the oil must pass before reaching the nozzle, in order to intercept any dirt or other particles which would otherwise lodge in the small end of the nozzle and choke up the passage. It has, secondly, for its object, the employment of a sliding punch which moves along the nozzle and forces out any dirt which may have accumulated by accident or otherwise in the small end. This invention is especially useful, as the nozzle often becomes clogged by dropping the can, and is frequently broken off to save the trouble of cleaning.

**WASHING MACHINE.**—Henry Elford Lea, Half-Moon Bay, Cal. This invention relates to an improvement in washing machines, and it consists of a containing box for the clothes, and within which in a revolving slat or perforated drum or cylinder the clothes are placed. A combined water boiler and furnace of peculiar construction stand at a short distance from the box and pipes which communicate between it and the boiler so as to keep up a continual circulation of hot water and steam between the two, and this in connection with an occasional revolution of the slat or perforated drum or cylinder, accomplishes the washing in a short time.

**IMPROVEMENTS IN THE MANUFACTURE OF DENTAL PLATES.**—Francis M. Shields, Sacramento. The object of this invention is to provide an improved process and apparatus to be employed in the manufacture of artificial dental plates from the metal aluminum. The process consists, first, in casting the plate at two operations, so that while the teeth are securely fastened to it, they are in no danger of being broken or displaced by the contraction of the plate in cooling. The apparatus consists of a flask suspended on trunnions so as to swing between standards. The flask is of proper shape and its exterior conforms to the shape of the model so as to avoid fracture. A curved pipe rises from the top of the flask and carries a crucible at its outer end, within which a sufficient quantity of the metal is fused for a plate. An air pipe enters one side of the curved tube and through this a pressure is brought upon the metal sufficient to cause it to thoroughly fill the matrix. Small upright tubes arise from the cover of the flask and by means of minute holes in these it is possible to know when the mold is full. The process and devices are exceedingly interesting and valuable.

**ANIMAL TRAP.**—John H. Mooney, Geo. A. Lloyd, S. F., Cal. The object of this invention is to provide an improved trap, chiefly useful for gophers, squirrels, etc., and it consists mainly in the employment of two rods moving parallel through a suitable supporting frame. These rods are connected together at their rear ends and their front ends are armed with sharp points. A spring is so arranged as to throw the rods forward if the holding catch is disturbed, after being set, and by a peculiar arrangement of mechanism the upper one of the rods is made to describe an arc with its forward end as it shoots out, thus reaching over and grasping the animal which has approached the trap. This device is

very simple and effectual, especially for gophers, which it always seizes, notwithstanding the load of dirt which they always push before them and which generally springs other traps without catching them.

**IMPROVEMENT IN HORSE POWERS.**—R. J. Cheney, Petaluma, Cal. The object of this invention is to provide an improvement in horse powers, by means of which, a brake can be readily applied, and it consists of the usual frame supporting the horse power with a central hub, about which the master wheel turns. A nut is affixed to a portion of the frame, and a rod is arranged to screw down through this nut. A plate is fixed to the lower end of this rod and bears upon the tumbling rod when screwed down and thus regulates the speed of the machine.

## INDIFFERENT METALLURGY.

[From the Overland Monthly.]

No other region has a better right to be proud of its extensive and apparently inexhaustive auriferous and argentiferous deposits than the Pacific Coast. It is to them that it is really indebted for the rapidity with which it has advanced to the leading position it now holds as a mining region. Such deposits are undoubtedly the very best agents for populating a new and uninhabited country, and are justly entitled to the honor of being considered the loadstone of civilization. It is, however, noteworthy, that all countries, so peopled, have, without a single exception, retained their inhabitants through the medium of some other resource, at first despised and neglected, upon which they have also been dependent for permanent prosperity. And, much as the present prosperous condition of the Pacific Slope is due to the products of its gold and silver mines, other resources, of at present supposed inferiority, are evidently destined to permanently establish and maintain the same in the future. Of course, it cannot be considered that our gold and silver ledges exhibit any signs of early exhaustion; but the fact that their products do not enter generally into the common industries of the country, justifies the belief that they will not always occupy the most prominent position among our mineral resources. The amount of labor engaged in the extraction and reduction of these metals is limited; and, inasmuch as they are not applied to the useful arts, the labor, directly or indirectly dependent upon them, cannot possibly greatly exceed that already engaged in those two branches.

In the early period of our mining history, the frenzy accompanying the "gold fever" caused those who flocked to our shores to overlook other resources of wealth, of which the land was equally prolific. The varied character of our climate, and the rich soils of our extensive valleys and foot-hills, were actually condemned, as being utterly unadapted for the profitable production of cereals. Experience has, long ago, dispelled that erroneous idea, proving the land to be as fruitful and as varied in its agricultural products as that of any other country; in fact, the aggregate annual value of our agricultural products greatly exceeds the aggregate annual value of the products of our gold and silver mines.

Our agricultural resources are, consequently, at present, more valuable than all others. It is, nevertheless, very probable that the leading position will, ultimately, be usurped by our untouched deposits of inferior metals. And to one of these inferior metals we are already greatly indebted for our reputation as a gold-mining country. Our rich auriferous deposits would have been of much less actual value to us, had it not been for the opportune discovery of extensive deposits of quicksilver in our Coast Range. The limited quantity of that metal which the mines of other countries could have actually afforded to contribute, would have been altogether insufficient to meet the sudden and enormous demand created for it here. Providentially, an abundance of this indispensable agent for the extraction of gold from the rocks throughout which it is disseminated, in almost imperceptible particles, existed in our mountain ranges. We are thus spared the anxiety that would naturally possess us had it not existed, as this fine gold would be utterly and irrevocably lost without its assistance.

The great bulk, and general dissemination, of the deposits of inferior metals, throughout the Pacific Coast, will eventually give them a decided superiority over all our other resources—mineral and agricultural—both as to the quantity of labor

employed in working the mines and in reducing the ores, and to the aggregate value of the results. These inferior metals will, ultimately, establish the character of this coast, as being pre-eminently a mining region. Lead and copper will evidently be the principal products, ere long, as they exist in much greater abundance than any other. The geological formation, in many parts of the coast, favors the presumption of the existence of extensive deposits of iron ore; but none of any importance have, as yet, been discovered. Large bodies of chromic iron exist in various localities; but it loses much of its value to us, on account of there being no demand here for chromates, for the manufacture of which, only, it is used. Whether it is of any commercial value for export, has not yet been fully demonstrated. A few small shipments have been made lately, for experiment. The only deposits of iron ore, of any prospective value, are those existing on the Willamette River, in Oregon, and in some of the interior counties in this State. Had our iron-ore deposits been extensive, it is very doubtful whether they could be utilized, on account of the scarcity of fuel suitable for smelting purposes. The carboniferous beds, lying south of the forty-ninth parallel of latitude, are of the lignite formation, and no method of smelting with lignite coal has yet been discovered. The blast-furnaces of the present day are adapted for the consumption of bituminous and anthracite coal, only. The iron-ore deposits in this State are situated so far in the interior, that, even with an abundance of proper fuel, it is not likely they will become of value to any other than the adjacent mining districts, as pig-iron can be imported to the coast, from Europe and the Eastern States, for as low, if not lower, rates than it could possibly be shipped from the interior by rail.

Our veins of lead ore, on the contrary, are extensive in all the States and Territories on the Pacific Slope. Nevada is itself a vast basin of metalliferous deposits, as proven by the developments already made, and the large quantities of argentiferous lead transmitted to this market from the White Pine, Eureka, Elko, Battle Mountain, and Palisade Districts. The Eureka District, especially, appears to be a solid mass of lead ore, rich in gold and silver.

The deposits of copper ore are nearly as extensive as those of lead; and, although at present neglected, will undoubtedly attract, at an early period, as much attention as they have once done in the past.

Discoveries of the presence of extensive bodies of tin ore have been recently made in the southern counties of the State, which promise to be an important addition to our future mineral wealth.

It may be confidently asserted that the future condition of our metallurgy is entirely dependent upon the manner in which we utilize our various deposits. If, instead of converting them into manufactured material and applying them to the building up of our home industries, we ship them in their crude state, to swell the industries and increase the wealth of foreign lands, then we shall be wilfully divesting ourselves of that which it is our duty, and to our immediate and future benefit, to retain. The only reduction works extant, to the west of the Rocky Mountains, are the Selby Smelting Works, situated at Black Point. These works are adapted only for the treatment of argentiferous lead, either as dressed ore or as crude bars.

Another smelting establishment is now being erected at the south end of the city, by Mr. Edmund C. Burr, which, when completed, will be an additional attraction for the shipment of ores in this direction.

Much of the Utah and Nevada argentiferous ore and bars of crude metal, formerly treated at the Selby Works, is, at present, shipped to New York and England, the greater portion going to the latter country. The quantity of ore and bars thus exported to England has been sufficiently great to induce the Hon. Henry Hussey Vivian, M. P.—the prince of smelters—to reopen the White Rock Smelting Works, located at Swansea, South Wales, and which have been closed for many years. Extensive alterations have been made in this establishment, so as to adapt it for the special treatment of the galena of the Pacific Coast.

We have no provision whatever for turning into profitable account the immense bodies of antimony throughout California and Nevada. That no effort should be made to utilize this important mineral is somewhat strange when we consider that the whole of Europe is now almost entirely dependent upon the Island of Borneo for its supply. Neither have we any pro-

vision for the treatment of copper ores, that mining industry being at a complete standstill on that account; nor for the treatment of silver ores, or argentiferous copper ores; nor for the treatment of argentiferous and auriferous copper ores.

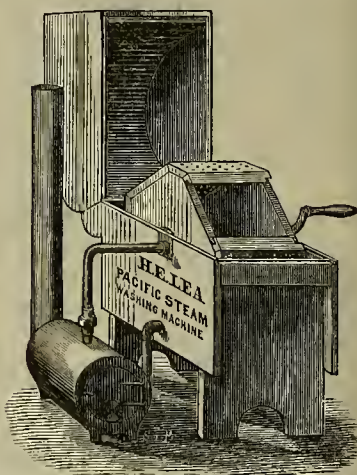
Those ores that are extracted from our mines, and for which we have no provision made for their efficient treatment, are shipped abroad, and the country is deprived of that increase in its industries which is its legitimate property. And, while we are indifferent observers of all this, Chicago, Omaha, and other cities, located on the Eastern slope, are setting up their individual claims to the vast mineral wealth of the West. They are beginning to inquire why they shall not reap some benefit themselves from the mineral deposits existing midway between them and the chief mart on this side, and they are rapidly qualifying themselves to enter earnestly into competition for them.

[To be continued.]

## Pacific Steam Washing Machine.

This is something that will interest our lady readers, who, if they do not have the work to do themselves, should nevertheless welcome anything that will assist their servants in doing it. This machine is a valuable invention which consists of a box, inside of which is a revolving slat or perforated drum or cylinder, into which the clothes or other fabrics to be washed are placed.

A combined water boiler and furnace of peculiar construction, stands at a short distance from the box, and pipes communicate between it and the boiler, so as to



keep up a constant circulation of hot water and steam between the two, which, in connection with an occasional revolution of the slat, or perforated drum, accomplishes the washing in a short time. The clothes are put into this drum through the proper opening, and the water poured in until it rises up in the box so as to cover the lower part of the drum; this fills the boiler, which keeps the water, after once heating it, at the boiling temperature by a very slight increment of heat. The hot water is continually passing and repassing through the clothes while the drum is being turned by means of the crank, and they are washed without the necessity of rubbing. This is accomplished by slight friction given during the revolution of the drum and the hot water and steam combined.

This is a late California invention, and its merits can be easily seen by reference to our engraving. It can be set up in a shed, or anywhere, independent of a stove. This machine will cause a great saving in clothes, especially fine fabrics, like laces, etc.; and is warranted to wash without rubbing, if instructions are followed. Two different sizes are made—one for landladies and one for family use. At present they are only made to order, for those making are all engaged. Parties desiring to purchase will be referred to various persons using the machines who have thoroughly tested them.

This invention was patented through our agency by H. E. Lea. Any further information concerning it may be had by addressing the patentee at Half-Moon Bay, San Mateo County, Cal.



## USEFUL INFORMATION.

**VEGETABLE LEATHER** is now extensively manufactured, the principal materials being caoutchouc and naphtha. The product is only one-third as costly as ordinary leather, which it resembles so nearly that they can be distinguished only by close inspection; and the vegetable leather has the additional advantage of being made in entire pieces fifty yards in length if desired, one and a half yards wide, of any thickness demanded, of uniform quality and ample strength. It has but little odor, that of the naphtha being subdued in the process of manufacture. It is proof against the effects of moisture, and a nail will not scratch the surface. For book-binding, covering for writing desks and tables etc., it is especially adapted and largely used.

**LEATHER BOARDS.**—Within a few years past, refuse leather, in the form of cuttings, scrapings, etc., from shoe and harness factories, has been utilized by being converted into leather boards, which are extensively employed at the present time in the United States and Europe for the manufacture of inner soles of shoes, and for other purposes, where the material is not likely to be exposed to the wet. The process of preparing these boards consists in first cleaning the scraps, so as to free them from all foreign substances, and then softening them for a time in water, to which is added some adhesive substance such as gelatine. After being sufficiently softened the scraps are laid upon tin plates of the proper size, having a rim all around, and arranged longitudinally and transversely, so as to make the strata nearly even, until the required thickness is obtained. A number of these plates are then placed one upon another and subjected to a hydraulic pressure, until the separate fragments are united into a nearly uniform mass. After these layers have dried sufficiently, they are passed under a roller, so as to smooth them off and give to them the external appearance of the original leather.

**THE MANUFACTURE OF KNIVES.**—Few people have any idea through what a number of hands their pocket-knives have passed in the process of manufacture. A bar of steel destined to furnish a number of blades, is heated to redness. A length is cut off, and the forger speedily "moods" this—that is, shapes it roughly into the form of a pocket-knife blade. Another heating is then required to fit the end for being fashioned into the tang and yet another before it can undergo the further operation of "smithing," the last stage of which is the stamping of the mark of the thumb nail to facilitate opening. The tang is then ground and the blade marked with the name of the firm. The slight bulge on the reverse side caused by this operation is removed by fire or the grindstone. The blade is then hardened by heating it to redness and then plunging it into water up to the tang. The tempering process follows next, the bluish yellow tint being considered as indicating that the proper degree of heat at which to immerse the blade once more in cold water has been attained. After this the various kinds of blades are classified in the warehouse and undergo sundry grinding operations to fit them for being hafted. Twelve distinct processes have by this time been gone through, and many more are necessary before the knife is completely finished, although the number of hands which it has now to pass through depends in a great measure on the finish to be given to the handle, according to the quality of the blade with which it is fitted, and the price which the completed article is intended to realize.—*Engineering and Mining Journal.*

**PEARL MANUFACTORY.**—The Chinese have, for centuries, carried on a well organized system of manufacturing pearls. The invention was made early in the 13th century, and they still honor the inventor with a temple, and acts of ceremonial worship. The French pearls, which excel all others in the beauty of their imitation, are manufactured, in the first instance, out of the scales of tiny white fish, which abound in the small tributaries of the Seine and Marne. It takes from seventeen to eighteen thousand fish to make one pound of the famous *essence d'orient*. It is curious that the nearest cognate substance to the pearl is bezoar, a concretion of deep olive green color, found in the stomachs of goats, dogs, cows, and especially of camels. The bezoar used to be a valued talisman.

Five persons to each house is the average number developed by the British census.

To a poor man, poverty greater than his own never appeals in vain.

## About India Rubber Shoes.

The first pair of India rubber shoes ever seen in the United States was brought here in 1820. They were gilt, and were pointed like the slippers of a Chinese mandarin. This pair, which were handed about as a curiosity, were followed, in 1823, by an importation of five hundred pairs, which, rough and ill-shaped as they were, were eagerly bought at high prices; and from that time onward, there was a regular importation of India rubber shoes from South America, of five thousand pairs per annum. It was the high prices which these shoes commanded, as compared with the extreme cheapness of the raw material, that caused an India rubber mania in the Eastern States. A company started at Roxbury, Mass., with a capital of three hundred thousand dollars, with extravagant expectations of its stockholders. The company met with unexpected difficulties. Shoes made in winter melted as soon as the summer came. When exposed to the cold, they grew as hard as stone. And what was worse, no one could tell of the winter made shoes whether they would stand the summer heats or not. The company feared to manufacture a large quantity, since the first hot week in June would melt the product of eight months' labor as readily as a single pair of shoes. The want of a way of curing or hardening this singular substance obliged the Roxbury company to wind up its affairs, which ruined a large number of the people of Massachusetts.

**WATER WORKS OF ROME.**—In old Rome there were nine aqueducts to supply the city with water, and the amount furnished for each inhabitant could hardly be less than three hundred gallons daily, or more than six times as much as is supplied to each person in London at the present time. One of their aqueducts was fifty-four miles long, and one forty-two miles long. No modern city ever had such perfect arrangements for baths and perfect cleanliness as Rome. The Roman sewers for carrying off the filth of the city were also more perfect. The main one, *cloaca maxima*, had a series of small channels flowing into it from all parts of the city, rendering the drainage most complete.

**SWANS SINGING.**—The singing of swans has been supposed to be a fiction; but John A. Hjaltalin, an Icelander, writes that he has often heard them sing in one of the firths of Western Iceland, where hundreds of them congregate. In the morning and evening their song is so loud that it can be heard miles away, and the mountains on both sides ring with the echo of it; for each individual seems to join in the chorus. The singing has not the slightest resemblance to the cackling of geese or the quacking of ducks. It is clear and full, and has a metallic ring. The notion that the singing is sweetest just before the swan's death is prevalent in Iceland. Their nests are in small inland lakes or tarns, only one pair nesting at a single lake.

**TO ELECTROTYPE ON CLOTH.**—For the purpose of coating fabrics and tissues with metal, such as copper, silver, and gold, the material is first to be impregnated with a solution of sulphate of copper, in ammonia, and then dried. After drying, the whole is immersed in a warm solution of grape sugar, which develops oxide of copper, upon which silver or gold can be electroplated in the usual way.

**AMERICAN WONDERS.**—The largest city park in the world is in Philadelphia. It contains over 2,000 acres.

The greatest grain port in the world is Chicago.

The longest railroad in the world is the Pacific.

The greatest mass of iron in the world is the Iron Mountain, of Missouri.

The largest aqueduct in the world is the Croton Aqueduct, New York.

**TO KNOW A REAL DIAMOND.**—The real diamond, though brilliant, is not transparent. When a diamond is polished, before it is set, its genuineness may be ascertained by laying it on a newspaper. If the stone hides the letters, it is real; if they shine through and are visible, the diamond is paste, rock crystal, or other imitation.

The number of horses in Russia is greater in proportion to the population than it is in our greatest horse region—Kentucky. Russia has one horse to every three persons. Kentucky has one horse to about four and a half of its population.

**TACKS.**—In the United States there are two hundred and fifty different kinds of tacks manufactured from brass, copper, zinc, and steel.

## GOOD HEALTH.

## DIGESTIVE PROPERTIES OF FRUITS.

With the exception of strawberries, there is no dessert fruit, produced in a wild state, easy of digestion. The crab-apple and sloe, the parents of the cultivated apple and plum, are wholly unfit for use, except in the shape of jams, or preserves, with a plentiful addition of sugar to correct the astringent nature.

## Commencing With the Apple—

the fruit in most general use, of which we have many varieties—the best being suitable for different purposes, but all containing more or less of saccharine matter, acid, mucilage, soft woody fibre, and water, the quality of the fruit being dependent upon the proportion in which one or the other of these prevails. The aroma of apples, on which their flavor seems to depend, is supposed to act as a mild stimulant, and to assist digestion: therefore those apples which have the finest flavor are the most esteemed. The mellow sorts abound in this quality, and they also contain a greater than ordinary proportion of sugar and mucilage, consequently are more nutritious. Pippins and all hard varieties possess much woody fibre, difficult of digestion. The dry mealy kinds, although not much relished, are highly nutritive, while the watery sorts are generally crude, cold, and ill adapted to weak stomachs in their raw state.

But apples of very inferior quality are made palatable and wholesome by the application of heat, and the fruit of apple pie if not too much spiced, or even the roasted apple, is highly nutritive and digestible. Before this fruit is subjected to heat, it is composed of a great number of little cells and vessels, containing the acid juice and the pulp—probably in a separate state. When heated, the juice expands and hursts through the cells, as the temperature increases, the watery portion of the moisture is partly converted into steam, and evaporates through the rind.

When the acid and pulp of the apple are thus set free from their confinement, they enter into more intimate union, and the taste of the acid is mellowed by its mixture with the pulp, in the same manner as rum is mellowed by being mixed with milk: as the pulp also contains saccharine, this is disengaged by the heat, and mixes with the acid.

Ripe, sweet, and mealy apples, produce a laxative effect on the bowels, while those which are sour and astringent should be avoided by the sedentary, as they are apt to induce costiveness, griping, and flatulency, particularly when eaten after meals by persons indulging in wine and spirits.

## Pears

have but little of the acid usually found in apples, but they generally possess more saccharine, and also more woody fibre which renders some kinds indigestible. Those which are not hard and solid contain along with their sugar, a considerable proportion of mucilage, which—although nourishing—is apt to ferment in the stomach and produce flatulence. The *Maria Louisa* and *Old Burgundy* are of easy digestion, the former perhaps the best and handsomest pear produced, and these when ripe may be eaten freely being sweet, mellow, and laxative, and very salutary to some constitutions, but heavy to cold stomachs when taken in excess. The very hard sorts should be prohibited to the weak, and moderately indulged in by the robust, having little nutriment, and their great quantity of woody fibre serving to overload and fatigue the stomach.

## Strawberries.

The strawberry was esteemed by the late Dr. Abernethy as the most wholesome of all fruit, "halsamic and refreshing, and one of the most precious gifts of Providence." It is mildly acid, contains a medium proportion of sugar and mucilage, and the seeds act on the bowels similarly to those of the fig. In some cases the seeds are said to have accumulated in the stomach and produced an alarming disease. The occurrence is rare, however, and need no more deter us from eating strawberries than the fact of a person being choked with fish-bone should deter us from eating fish. According to Linnæus, strawberries are an excellent prevention of gout and gravel. Wine is supposed to be injurious to the beneficial action of strawberries when taken in connection, and the usual appendage of cream and sugar, although highly nourishing to the robust is not adapted to weak stomachs. The fruit should not be too freely indulged in after dinner, or any other full meal. In warm weather strawberries

are very grateful for breakfast or linner, and a foreign fashion has lately been adopted: it is as follows:—Take off the stalks from as many berries as will form one layer at the bottom of a dish; sift some fine loaf-sugar over them, then place another layer, and sift again, each layer being smaller than the other, and the heap raised in a pyramidal form. When you have several layers squeeze the juice of a fresh lemon over the whole. Before they are served out, they should be gently disturbed so as to receive the full benefit of the lemon juice and sugar. They may be eaten heartily when thus prepared, without danger.

## Raspberries

resemble strawberries in most of their qualities, and may be used in the same manner; but their flavor is so strong to be agreeable when eaten fresh; they are, therefore, mostly used for tarts or preserving. In pickling, great care must be taken to abstract the small worm which will generally be found on withdrawing the stock when quite ripe.

## Gooseberries

according to Dr. John, an eminent continental chemist, the analysis of this fruit gave the following substances, but in what proportion he does not state: Water, sugar, citrate of lime, ditto of potash, resin gum, fibrin, ammonia, phosphate of lime and phosphate of magnesia. Next to the strawberry the gooseberry is esteemed as the most wholesome and digestible of our native fruits. Like that, it possesses a good mixture of sugar and acid, but abounds more in mucilage and hard seeds. The skin besides is astringent, acid, fibry and indigestible; from the latter of which qualities it acts upon the bowels by irritation, and proves laxative; for which reason some have recommended the skins to be eaten. Of this we do not approve, for the seeds answer the purpose sufficiently well without loading the bowels with a mass of indigestible and irritable substances. Gooseberries are recommended in cutaneous disease—being cooling to the blood—and also in deficiency of bile. Heat, whether applied to the stewing or baking proves (as in the case of apples) an excellent corrector of the crude juices of unripe and inferior fruit, and green shoots of rhubarb, which are likewise sub-acid and saccharine, make a wholesome addition to pies and puddings in the early part of summer.

**RAIN WATER** is very impure and unfit to drink until it is filtered, either through the soil, or by artificial means. Rain-water, especially that falling upon cities brings down with it much dirt which has been floating in the atmosphere—such as soot, earth and vegetable dust, ammoniacal salts, acids of various kinds, etc. In the country, rain-water is less impure. In this State the water of the early rains is much more impure than that from the later. The matter thus brought down exerts an important fertilizing action upon the soil.

Water, if very bad, can readily be examined in reference to its purity by carefully inspecting it with eye. If it is not perfectly clear it is impure. Much can also be determined by the taste. No water is good that tastes or smells badly. The microscope and analysis are, however, the only perfectly reliable means of testing it. No water is absolutely pure unless it is made so by careful distillation.

**THE TAPEWORM.**—It is very seldom that persons are affected with a tapeworm who eat their meat well cooked. The cyst that develops parasites is killed by thorough cooking. The tapeworm is usually developed from a cyst found in mealy pork. When this cyst passes uninjured into the human stomach it soon develops into a worm. As the joints mature, they are cast off. If these joints, when living, find their way into the stomach of a hog they then lay their eggs, which are developed into cysts, which work their way into the flesh of the animal, where they remain without any further progress toward development until they find their second home in the human stomach, and again take the round. It is thus that this troublesome parasite is kept up. They have also, though recently, been known to develop in the bovine species.



# Scientific Press.

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## San Francisco:

Saturday Morning, Oct 14, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, October 11, 1871.—Legal  
Tenders buying 88; selling, 88½. Gold in New York  
to-day, 114½.

## Table of Contents.

Drainage Siphon—III.; Reduced Charges for Milling Ores.....	225
MECHANICAL PROGRESS.—Destructive Effect of Salt on Axles; A New and Valuable Pavement; A New Partition Wall; The Life of a Locomotive.....	226
SCIENTIFIC PROGRESS.—The Analysis of Tea; Photographic Printing in Colors; Analysis of Cundurango.....	226
CORRESPONDENCE.—San Diego Mines; About the Use of Quicksilver; A Philosopher's Stone for Employers; Book Notices.....	227
MINING SUMMARY—Stock Exchange and Mar- ket Reports.....	228-29
NOTICES OF RECENT PATENTS.—Indifferent Met- allurgy; Pacific Steam Washing Machine— III.....	230
USEFUL INFORMATION.—Leather Boards; The Manufacture of Knives; About India Rubber Shoes.....	271
GOOD HEALTH.—Digestive Properties of Fruits; The Tapeworm.....	231
NOTICES TO CORRESPONDENTS; Chemistry of the Washoe Process; Notes on Contributions to Our Cabinet; An Inventor's Perplexities.....	232
History of Our Country Towns—III.....	233
History of Our Country Towns—continued; Domestic Economy.....	234
Assay of Gold; B. F. Cook's Harvester.....	236

## Notices to Correspondents.

EDS. PRESS:—Will you inform me in your  
next what is the cheapest effectual de-  
odorizer and disinfectant for cesspools  
and privies. A SUBSCRIBER.

Carbolic acid is considered the best article  
for the purpose indicated. Its disin-  
fectant, or rather antiseptic properties,  
are very remarkable. Recognized some  
twenty years ago, and used with marked  
success during the prevalence of cholera  
by the Frenchman, Dr. Jules Lemaire,  
it is only lately that the preventive and  
curative properties of this powerful  
agent have been evidenced. It is used  
for any purpose where it is an object to  
prevent decay and decomposition. Car-  
bolate of Lime possesses all the disinfect-  
ant properties of carbolic acid and is  
withal in a cheap form, to be used for the  
purposes indicated. It is put up in  
pound packages in the shape of a pow-  
der, and sells in this city at 25 cents per  
package. It possesses the power of de-  
stroying the germ or septic principle of  
all disagreeable and contagious emanations.

EDS. PRESS:—Will you be kind enough to  
inform one of your readers in Montana  
what a single sash saw will cut in 12  
hours (by water or steam power), and  
what is the most cut of lumber per day.  
I am told that 5,000 feet can be cut in 12  
hours by a sash saw, and by a circular,  
10,000 feet. Is this so?

The contingencies connected with these  
questions render them difficult to answer.  
The amount of power applied; size of  
saw; quality of lumber; and efficiency of  
of the sawyer, would all make some dif-  
ference. A common sash saw will, how-  
ever, with care, cut 5,000 feet in 12  
hours. As to the circular, a lumber  
dealer in this city informs us that he  
has a double circular saw that cuts 30,-  
000 feet a day, without doing the "edg-  
ing." The capacity would depend en-  
tirely on the above mentioned conditions.

## CHEMISTRY OF THE WASHOE PROCESS.

The process of pan amalgamation, often  
called the Washoe Process from having been  
used first in the Washoe district, has ever  
presented and still presents, many difficult  
problems both to the theorist and to the  
practical millman. To promote amalga-  
mation, besides numerous mechanical con-  
structions, various materials have been  
added to the regular charge of ore and  
quicksilver, some palpably absurd, many  
of questionable utility, and of those whose  
use is generally acknowledged as more or  
less advantageous, we yet know almost  
nothing of the exact influence exerted.

The only chemicals now used to any  
general extent are sulphate of copper and  
salt. While the efficiency of these in  
many cases, as in the treatment of tailings,  
cannot be doubted, yet in very many other  
cases their utility is questionable; certainly  
at least in the manner and quantity in  
which they are employed. Concerning  
them one can hardly get the same opinion  
at two different mills. Some establish-  
ments have used both, others only one,  
and neither of the two with indifferent re-  
sults. We know of cases where so small  
quantities have been employed that no ap-  
preciable result could possibly occur, and  
hence experiments in dropping one or  
both afford no grounds for any deductions  
as to their action. Other cases cannot be  
thru left out of consideration.

In the volume on Mining Industry, by  
the U. S. Geological Exploration of the  
40th Parallel, Mr. Arnold Hague contri-  
butes a most interesting chapter on the  
Chemistry of the Washoe Process, and we  
now propose condensing from this most  
important subject to many of our readers.

### I.—Character of the Ore.

The ore of the Comstock lode consists of  
quartz, as gangue, blende, galena, sulphide  
of silver (argentite) silver, gold, iron py-  
rites, copper pyrites, and of rarer occur-  
ence, stephanite (sulphur, antimony and  
silver), and polybasite (sulphur, antimony  
and silver generally with copper and arse-  
nic). A few other minerals have also been  
found. The clay gives considerable trou-  
ble and loss by its mechanical action.

In order to accurately determine the  
composition of the ore, a number of sam-  
ples of first-class (from the Savage) and  
third-class rock (from the Kentucky) were  
carefully analyzed. The first assayed  
\$49.22, the other \$43.74. No arsenic or  
antimony was found in either case (absence  
of stephanite and polybasite), nor was any  
native silver detected. The only ingredi-  
ents which could influence the chemical  
conditions during an amalgamation were:

1st Class Ore.	3d Class Ore.
Protoxide of iron.....1.96 per cent.	0.82 per cent.
Bisulphide of iron.....1.80 "	0.39 "
Subsulphide of copper......30 "	.41 "
Sulphide of zinc.....1.75 "	.13 "
Sulphide of lead......36 "	.02 "
Sulphide of silver.....1.08 "	.12 "
Gold......02 "	.0017 "
7.26	2.4917

### II.—Action of Mercury on the Mineral.

To ascertain as far as possible, the ac-  
tion of the minerals of mercury and of the  
chemical agents employed in, or formed  
during, pan amalgamation, the following  
experiments were made.

MERCURY ALONE, *a*, rubbed with native  
silver amalgamates easily; *b*, with chloride  
of silver forms amalgam and chloride of  
mercury; *c*, with argentite gives an imper-  
fect amalgamation; *d*, with stephanite and  
polybasite gives imperfect amalgamation,  
but better than with argentite, owing  
probably to the finer sub-division of the  
minerals.

MERCURY HOLDING A LITTLE COPPER AMAL-  
GAM, *a* and *b*, same as above; *c* and *d*, more  
perfect and satisfactory decomposition.

MERCURY AND FINE METALLIC IRON, with  
constant application of heat, acted on  
chloride of silver, argentite and stephanite  
with greater energy than mercury alone.

CHLORIDE OF COPPER, *a*, with pulverized  
argentite, standing 10 days in the cold,  
with occasional application of heat, gave a  
little chloride of silver and a trace of sul-  
phuric acid; heated (a moderately concen-  
trated solution) with the same to 90° C. for  
24 hours, gave sulphuric acid and sub-  
chloride of copper and chloridized but  
little over one-half of the silver; *b*, with  
polybasite, in the cold, gave a little chlori-  
dized silver.

SUB-CHLORIDE OF COPPER, with argentite,  
treated like the chloride; in the cold, de-  
composition ensued after several days;  
heated, only 2.9 per cent. of the silver was  
chloridized, while with the chloride of  
copper, 58 per cent. was chloridized.

SALT AND SULPHATE OF COPPER, a strong  
solution, *a*, with pulverized galena, stand-  
ing three weeks in the cold, gave unde-  
composed mineral encrusted with a large  
amount of sulphate of lead and oxychloride  
of copper; *b*, with blende, same treatment,  
gave considerable oxide of zinc, little cop-  
per and blende coated with oxychloride of  
copper.

COPPER SOLUTIONS alter but slightly  
iron and copper pyrites.

### III.—Pan Experiments.

With a view to determine, if possible,  
some of the problems involved in the action  
of mercury, salt and sulphate of copper  
employed in the decomposition of Com-  
stock ore by the Washoe process, a series  
of pan experiments were made on the two  
classes of ores given above. These experi-  
ments were made to imitate as far as pos-  
sible actual mill operations. A small Wheel-  
er pan was used, from which the pulp ran  
into a settler, where additional mercury  
was used, and finally the great bulk of  
sand and mercury was caught in huckete  
and separated by hand, to avoid all loss.

Of the second-class ore, charges of 20 and  
of 15 lbs. were used, with 4 and 6 lbs. of  
mercury, and, in different cases, from ¼ oz.  
to 4 oz. salt with one-half the amount of  
sulphate of copper in each instance. In  
six experiments no chemicals (except mer-  
cury) were employed. In four cases sub-  
chloride of copper was added in a solution  
of salt, the quantity of copper being equiv-  
alent to the amount contained in 1 oz. of  
the sulphate of copper. In one case 1½  
oz. salt with 2 oz. sulphate of copper, and  
½ oz. sulphate of iron were added. The  
pan was run sometimes four and some-  
times five hours. Of the first-class ore  
charges of 10 to 15 lbs. with three to four  
lbs. mercury were used, of salt, 1 to 4 oz.,  
with one-half the amount of sulphate of  
copper, and sometimes neither, were em-  
ployed. In four cases sub-chloride of  
copper as above, and in two cases, 1½ oz.  
salt with sulphate of iron and copper,  
were added. Time 4, 5, and 6 hours.

The results were by no means satisfac-  
tory in all respects, yet they throw some  
light on several important points. The  
relative yield of gold and silver was much  
higher in the case of the lower grade than  
of the higher grade ore. With the former,  
in every trial, except one, the yield was  
larger than usually returned under the  
most favorable circumstances in practice,  
due probably, in a great measure to the  
relatively large amount of mercury em-  
ployed. The third-class ore, moreover,  
gave as favorable results with mercury  
alone as when chemical agents were added,  
proving the utility of quicksilver aided by  
heat and iron to decompose the power and  
easily reducible silver minerals.

With the high grade ore the yield was  
in all cases very much below the yield with  
the low grade, and also lower than the  
average returns from mill upon ores which  
are not first roasted, this is due to the  
large percentage of blende and galena pres-  
ent. The use of chemicals showed a decided  
gain in yield where much base metal oc-  
curs. The use of salt and sulphate of  
copper did not increase the loss of mer-  
cury, although large quantities were pres-

ent in many cases. In the experiments,  
conducted with every possible precaution  
to repeat the precise conditions of a charge,  
using the same quantities of salt, sulphate  
of copper and mercury, the results differ  
as widely as in those cases where the  
amount of chemical agents are much less  
or entirely abandoned. The cause of these  
great differences in the yield of hullion  
must be sought elsewhere than in the vary-  
ing amounts of the chemical agents  
used, however important they may be, in  
certain cases, in aiding and assisting de-  
composition. A favorable yield undoubt-  
edly depends more upon the native condi-  
tion of the mercury than anything that is  
usually added to the pulp."

In the lower grade ore equally good re-  
sults were given in the shorter runs. In  
the higher grade ore, the base metals require  
more time for any chemical changes before  
amalgamation can take place.

(To be continued.)

## Notes on Contributions to our Cabinet.\*

We have received from Mr. E. Flanagan,  
of Banner District, San Diego county, a  
piece of gold-bearing quartz from the  
Madden mine in that District. The rock  
shows no free gold, but nevertheless pays  
about \$52.50 per ton at the mill. The ledge  
is about two feet wide, and the rock came  
from the bottom of the shaft—60 feet deep.  
(A communication from Banner District  
will be found in another column).

\*Under this heading we shall continue to mention and  
describe, according to merit, such specimens of ores,  
minerals, fossils, curiosities, etc., as may be sent to us  
by mail or express prepaid. Each article will be num-  
bered, marked with the name of the donor and the  
locality, and placed in our cabinet. A full account of  
the place, occurrence, etc., adds much to the value of  
such specimens.

## An Inventor's Perplexities.

An important suit has been instituted in  
the Fifteenth District Court, by Edward P.  
McCarthy against Chas. T. McDermott,  
H. P. Wakelee and Chas. R. Peters. The  
plaintiff is the inventor of an improve-  
ment in the manufacture of illuminating  
gas and avers that in November, 1869, he  
entered into partnership with the defend-  
ants for the purpose of introducing it on  
the coast. He was to contribute his patent  
right and invention and they a certain  
sum of money to test it, and if successful  
to erect the necessary machinery to bring  
it into use. If carried on, each one was to  
receive one-quarter of the profits. It was  
further agreed that no sale or agreement  
was to be made unless with consent of all.  
On December 5th, 1869, an indenture was  
signed by all parties concerned which  
plaintiff supposed contained all the above  
conditions, but which omitted to state that  
he and defendants were equal partners.

Plaintiff alleges that successful tests  
were made, and that in May 1870, a fran-  
chise was obtained from the proper au-  
thorities of San Francisco, to supply gas  
to the streets of this city. He also says  
that since the tests, the defendants have re-  
ceived various sums of money amounting  
to \$50,000 from other gas companies, in  
consideration that they should not use the  
invention in this city and elsewhere, and  
for sale of patent rights, and that they  
have appropriated the money and refuse to  
account for it or allow him his share. He  
prays that the indenture may be so amend-  
ed as to truly set forth the terms of the  
partnership, that the partnership may be  
dissolved and an accounting had, and that  
he be adjudged entitled to one-fourth of  
the whole amount, which he believes will  
amount to upwards of \$250,000; and fur-  
ther, that by reason of this refusal to ac-  
cede to the terms of the agreement, he may  
recover judgment for \$150,000 damages.

OUR HISTORICAL SKETCH of Knighte  
Ferry, by Mary Jameson Locke, will be  
found very interesting to both old and new  
California residents. It is more than a  
history of the town—it is in part a racy  
delineation of California life.



# HISTORICAL RECORD.

## History of Our Country Towns—No. II.

### KNIGHTS FERRY.

STANISLAUS COUNTY, CAL.

[Written for the Press by MARY JAMESON LOCKE.]

Pen-scratching among the stale and well-forgotten rubbish of dead ages is a grave business and requires a certain style of courage; but a wary and gingerly audacity is much needed by the writer who arrests in mid-career a growing California town, tricks it out with shreds and patches of memory, labels it History, and trots it forth for public inspection.

In near view of this task I shrink and falter. The subject is so young, so alive, so unconscious of impending "treatment," and if Mr. Editor would allow a choice of historical "bones to pick," I would much prefer to serve up ancient Gaul, or sketch the rise and fall of the Tower of Babel; or give an inky outline of that obscurest and busiest of all ferries, that plied on fabled Styx, and whose grim boatman was known to shuddering souls as Charon, son of Erebus and Nox.

Mining towns in California have been addicted to the mushroom habit of springing alert and full-grown upon the world; and this swift surprise of life has so often resulted in equally rapid decay, that the dry bones of scores of California towns and camps now lie bleaching upon the hillsides or grimly desolate in silent valleys.

Luckily for the historian, Knights Ferry has a Past, and several well-defined epochs of normal growth. Doubtless there are many who remember when the town began to cut its eye teeth—wear "store clothes" and deal lavishly in wild oats and other outcroppings peculiar to the period. Possibly there is an "oldest inhabitant" who listened to prehistoric traditions during those early days when there was not much sign of the coming town; merely a "crossing" for the eager throng whose land of golden promise lay beyond. Knights Landing on the Sacramento also owes its name to

Capt. Knight, who left his family there, when in the spring of '49 he "struck out" to prospect the Stanislaus, upon whose banks he pitched the pioneer tent, built the first ferry, started the first hotel, and lay down to rest in the first white man's grave. He had been a famous trapper, hunter, and guide in one or more of Fremont's expeditions. Thus familiar with the country, and directed by native shrewdness, he was led to select this point on the Stanislaus as the natural gateway of travel from the plains to the mountains; for the road would pretty nearly "make itself" all the way from Stockton (36 miles) to Sonora, 27 miles beyond. Here also was a natural water-power where the river came fretting from its rocky cañons and broadened tranquilly between the sloping, sleepy foothills. If he had an eye for beauty he still chose wisely, for until smitten by the swift destruction of mining there could hardly he

found a lovelier nook. Here was "the forest primeval," and a river whose crystal clearness betrayed the whereabouts of glancing trout, and large, fat salmon. In all directions beneath the venerable oaks were

Indian Mounds, ancient and grass-grown, or modern and still swarming with swarthy life; and no evidence was lacking to prove that this had long been a favorite rallying point for Indian tribes, where their harvest of acorns and fish was almost without limit.

Among these Indians was a living bundle of skin and bones, a breathing mummy of a squaw, whose age must have been about 140 years. There were other ancient and dried up samples of Digger longevity, who all declared that when they were youngsters, she was already the oldest of the old; and none who saw her could doubt this, or fail to get some startled notion of a possible "baboon origin."

She mumbled the dim tradition that this smiling valley had once been a great, wide

enterprise. Seeing no tangible "dust" the young man decided it would hardly be safe to test this generous promise, and on he went with his company. But those were the days when capital lurked and gave no sign.

Coming again to prospect the mill-site in 1853 he could join the laugh at his own expense when Capt. Dent whisked from a safe the greatest oddity of an old buckskin bag, (about two feet long and shaped like a gourd with huge pouch at bottom,) and exclaimed:

"There Mr. Locke! when Capt. Knight offered to advance funds to build a mill, he had this packed full of gold dust and no knowing how much more stowed away under his old bunk!"

A business partnership was now formed, and the firm of Locke & Dent proceeded to put in the first permanent dam that ever crossed the Stanislaus.

By June of 1854 their sawmill was running, and about four months later their flouring mill was grinding away upon some of the first wheat ever raised in this region, that has since become almost world-famous for its immense wheat crops.

Agriculture at this time was taking its

one she called "Pudding" and the other she called "Pie." "Pudding" was so very plain that she liked "Pie" vastly better and gave him all sorts of smiling encouragement, but the dapper young clerk was only flirting for fun and she waited in vain for proposals. Finally, she lost faith in "Pie" and astonished her friends by accepting the plain substantial "Pudding."

Doubtless she has found ample verification of the old adage—"The proof of the pudding" etc. etc.

### Mining.

Until 1854 and '55 the "pay dirt" of this vicinity had attracted no general attention. Indians had panned out considerable quantities of gold and a few cradles were rocked on the river-bank. But now began the Ditch mania with Parson's Ditch, that led from the mill-dam along the south bank of the river; Thompson's "Dry Ditch" that yawned for the tardy waters of Littlejohn Creek; and finally the great San Joaquin Ditch that tapped the Stanislaus six miles above the Ferry, and so came broad and deep along the hill-sides or through great flumes that clung to the walls of cliff and rocky cañon. This enterprise was pushed by a stock company with the names of Calloway, Short and Bishop, prominent as superintendents.

As in many costly mining schemes, the projectors were unable to finish the work, and in 1856 Mr. A. Schell of Stockton invested such capital and energy as brought it to completion and also brought him to Knights Ferry as a permanent citizen, where he has ever since been one of the leading spirits in all public affairs and interests of town and county.

With the plentiful rush of water came hundreds of miners to the little town, and its swift, cheap growth betrayed "flush times" and the usual excitement of mining life. Hills and valleys were torn "inside out" and sent whirling into the Stanislaus that now between broken banks rolled sluggishly like a vast stir-about of muddy mush.

Buena Vista and its forest of grand old oaks must also come out by the roots, and so much water would be needed that another great ditch for that side of the river was started by Kappelman & Co.—finally finished by San Francisco capital, and is now owned by the Pentland Bros. Ditch property hereabout cost about a quarter of a million, with continued heavy expense for repair of damages from floods etc.

Big strikes and sudden fortunes were never made here, but if it were possible to compute the whole amount of gold gathered, it would, doubtless, make a fine figure.

For the last ten years the mining interest has steadily diminished—is now nearly forsaken by white men and hardly kept lively by "Heathen Chinese." Mr. McSorley, a veteran miner and pioneer of the town, still toils among the rocks of Goat Hill and deserves mention for the constancy with which he has pinned his faith to Knights Ferry.

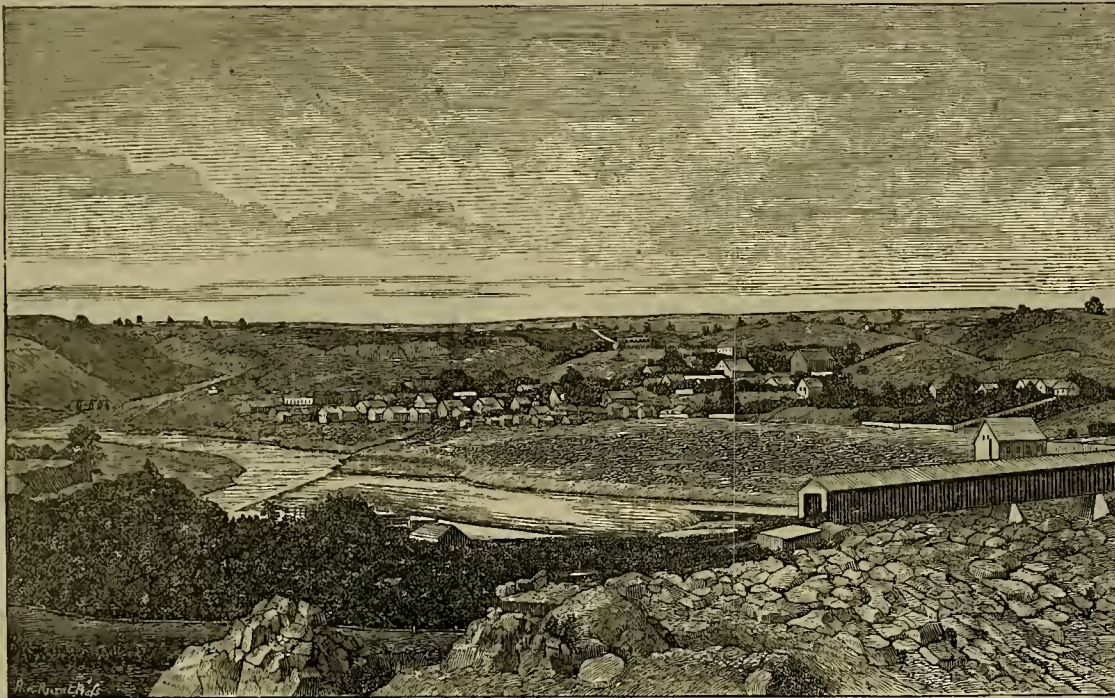
In 1857, the town and region roundabout suffered from an affliction sadly familiar to Californians, and many pleasant homes were left desolate in the grasp of a Spanish land grant.

Again the prosperity of the town was seriously checked by the

### Great Flood of '61-'62.

that swept nearly every building from the business part of Main street and lower side of the Plaza, carried away the flour mill, the bridges of Locke & Co., and left a scene of gloom and desolation impossible to describe. Much "portable property" might have been saved; but these modern antediluvians had no faith in a Deluge and while they scoffed at the notion, away went houses, tools, furniture, dry goods, and things too numerous to mention.

Many found perilous excitement in trying to catch and secure a portion of the immense quantity of "drift" that went,



TOWN OF KNIGHT'S FERRY, STANISLAUS COUNTY, CAL.

lake, and the story is also written on the surrounding hills.

A remnant of these Indian tribes may still be found at their rancheria near town. The close contact with civilization has been followed by the usual fatal results.

After the death of Capt. Knight the ferry and belongings were owned by Dent & Vantyne; but the latter—who had been Capt. Knight's partner—soon sold his interest to the brothers, John & Lewis Dent, who were thenceforth, for some years, sole proprietors of the ferry, hotel, and pre-emption claim of land along the north bank of the river.

They also had a little store where another brother had supervision of a retail traffic with the Indians and officiated as postmaster, and "Justice of the Peace." This brother had arrived with his family in 1852; and his wife, Mrs. Geo. W. Dent, was the first white woman who lived at Knights Ferry and enjoyed the luxury of homesickness at the foot of the stony bluff that backs the town. Maj. Lane and family came also in one of those early years, and settled at "Mountain Brow," a few miles below the Ferry.

In later years the Major has been well-known to the traveling public as landlord of the principal hotel in town, and from first to last how many hearts of homeless strangers have been cheered by his kindly hospitality.

With the first company and team that ever made tracks on the direct route from Stockton to Knights Ferry, there was a Yankee machinist who had an appreciative eye for mill-sites, and a keen regret over the busy idleness of a fine water-power running to waste. He talked over the matter with Capt. Knight who strongly urged him to "stake out a claim" on the Stanislaus and put up a saw-mill then and there; offering also to "come down with the dust," that would be needed for the

first timid steps; fruit-culture and gardening had not yet become fashionable in the foothills. Knights Ferry was still a mere stage station, of hotel, store, stable, blacksmith shop, and a few rough cabins and tents, where the usual assortment of culture, coarseness, brains, and brawn, enjoyed the luxury of "roughing it," and cultivated the fine culinary art of frying pork and slap-jacks.

While it was yet hot in the summer of '54, there "might have been seen" sauntering along the crooked trail that led from ferry to mill a quiet, unobtrusive man, who sometimes sought a shady spot where he could comfortably smoke, whittle, watch the mill-wheels noisy whirr, or possibly take a little nap, and dream of future greatness. To some of the citizens he was introduced as

### Capt. Grant;

but not once during his brief visit was he conscious of the vast crowds of people who "saw him there," and who have since turned up in the most unexpected places—chiefly in the vicinity of the White House at Washington.

A "reliable reporter" says that Grant has been making inquiry about this renowned "ferry," and is satisfied there could be no better investment for presidential dollars, provided the rush of "pilgrim strangers" will still compare favorably with the multitude who "saw him there."

The announcement of this shrewd notion has been followed by an ardent wish on the part of the President to visit California and the good people of Knights Ferry, may crack this nut to suit themselves.

An amusing story of Grant's courtship was told by one of the Dent brothers, and in later years has been repeated with great relish by the ardent admirers of "Unconditional Surrender."

"Sister Julia," said he, "had two beaux,



floating by. One poor man ventured too far and also drifted away where no human eye could follow.

The tremendous loss of property was followed by a considerable loss of citizens who became discouraged and sought safer anchorage for household gods.

But California pluck asserted itself as usual and signs of the wreck soon disappeared. The bridge was replaced by a strong and handsome structure that is believed to be flood-proof. The mill was rebuilt of stone by D. W. Tulloch—is still in active operation and doing a large business.

Main street grew up again with shops, stores and dwellings that were partially overflowed and considerably damaged by another flood in the winter of '67-'68. Mining operations have tended to fill up the river bed and increase the dangers of overflow.

Two newspapers had been published heretofore, the *Knights Ferry Bee*, followed by the *Stanislaus Index*, and this latter did not long survive the flood. The town has twice suffered

#### Trial by Fire.

In the summer of '64 several buildings were burned, and notably the old Hotel where stages had stopped ever since "early times." A second fire occurred last August and destroyed seven buildings on the lower side of Main street, viz.: Palmer & Moulton's store; Buddington's saloon; P. Englehart's blacksmith shop; Vogt's shoe shop; A. T. Bartlett's harness and saddle shop; Gardner & McLean's hay barn, with 60 tons of hay, and Kline & Tremayne's butcher shop. New buildings were soon erected and the appearance of the street considerably improved.

But the town suffers further loss since this fire in the departure of Henry Palmer, a tried and true citizen, who has been for fifteen years widely known and respected as merchant, express agent, etc. There now remain but a few of the prominent

#### Pioneer Business Men

of the town and vicinity. C. S. S. Hill at the old familiar store on Main street; James Allen of the early firm of Palmer & Allen, but now of Allen & Clark; Isaac Dakin still at the head of a large wheelwright and blacksmith business; Samuel Dingley, well known to the traveling public; D. Parker, blacksmith; W. E. Stewart, one of the first to engage in fruit culture and still famous for raising the best and earliest peaches in the country.

All these and many others who came at a later date, belong to that desirable class who settled at once to the duties of permanent citizenship.

#### Churches and Schools.

Religious service was of rare occurrence in early days, and was first held in the primitive bar-room; next in the unfinished flour mill of Locke & Dent. Then a worthy itinerant rigged a rough room in one end of a stable and set up his household gods—the fry-pan and battered dough-dish. Here he kept "bachelor's hall," taught the half dozen children on week days and preached on the Sabbath. A slight board partition separated the congregation from a long line of mules, whose response to hymn and prayer was noisy and emphatic.

In 1856 the Rev. James Bishop took charge of church affairs, preaching in the kitchen of S. Bishop, in the shop of McLaughlin & Dakin, and finally organized a Methodist society that met for regular service in the town hall, which was also used several years for school purposes. The court room became in turn the scene of public worship, then Armory Hall, which was finally purchased and fitted up for a church, but went to wreck in the flood of '68, and a neat small church has since been built in a safer location.

Those who are familiar with this sketch will recall the unselfish devotion of Father Bishop to the interests of Church and Sabbath School, and though his kindly face is no longer seen at Knights Ferry, his good works and words will not soon be forgotten.

Within the past year two good school-houses have been built in town; one for the public school of forty scholars, the other for the private school of Mrs. Stakes—twenty scholars.

Buena Vista District has also its neat, new schoolhouse and from thirty to forty scholars.

In 1861 an effort was made to procure a library for the use of schools, and the people responded so generously that a change of plan was made in favor of a

#### Public Library.

This now contains nine hundred well-selected volumes kept in the office of Schell

& Hewell, where may also be found one of the best private law libraries outside of San Francisco.

The existence of this excellent public library is but one among many proofs that the women of Knights Ferry have quietly demonstrated their line of "rights."

In charities, that begin and end at home, and in many enterprises of broader scope, they have shown a capacity for zealous and harmonious co-operation that insures desired results and has never known a failure.

Long may these shining lights be spared to brighten happy well-ordered homes.

#### Fruit Culture.

With ample irrigation nearly all known varieties of fruit may be easily grown, and special attention is now being given to the cultivation of desirable foreign varieties of grapes, that are found to mature here at least two weeks earlier than in any other part of the State.

Large vineyards of home and foreign varieties are owned by Pentland Bros.—Stemm & Gerkins and J. Slook. The Red Mountain vineyard of Schell, Krause & Co. has a well established reputation for excellence of wine and brandy, and promises to yield this year thirty thousand gallons of wine. The products of this vineyard received special praise from the Senate Committee on "grape culture and production of wines and brandies"—(1870) and the method of manufacture pursued here is given in their report.

#### Business Summary, etc.

Knights Ferry formerly belonged to San Joaquin county, was annexed to Stanislaus in 1860, and since 1862 has been the County Seat. The large brick building erected in 1858 by Wm. A. Fisher, was purchased by the county, and now contains the court room, offices and jail—also the Knights Ferry Hotel," kept by Bishop and Gardiner. The Washington Hotel on Main street, is kept by F. S. Barnes.

Of law firms there are (A.) Schell & Hewell—(G. W.) Schell and Scrivener and T. A. Caldwell.

Doctor James Lowe, and Dr. Marks, who has charge of a county hospital recently established.

Merchants, Hill & Warner Bros.; Allen & Clarke; J. Haslach & Co.; Moulton & Valpey; these last are also agents for Wells, Fargo & Co.

Wheelwrights and Blacksmiths, I. Dakin; J. L. Conner and P. Englehart.

Saddle and Harness Maker, A. T. Bartlett.

Carpenters, E. T. Stone, D. Gillis.

Boots and shoes, K. Vogt, G. Gule.

Livery stables, Gardiner & McLean, L. Voyle.

Saloons, H. K. Covert, J. D. Buddington, and E. J. and J. Loddman who also own a brewery.

Toy and fruit store, James Simpson.

At the upper end of Main street is the fine large flour mill of D. W. Tulloch with its four run of stone, busy day and night.

On the upper side of the Plaza a neat Masonic hall has been recently built. In the lower story of which is the apothecary shop of T. M. Lane.

The hotel of S. Dingley, blacksmith shop of D. Parker, harness shop of Mr. Foster, and store of Randall & Stewart, are in Buena Vista. On both sides of the river are pleasant cottages with home-like surroundings; and remembering these, no faithful historian can forget the generous hearts and ready hands that have helped to establish whatever is "lovely and of good report" in this community.

The business of the town shares in the general depression resulting from the drouth. The grain crop in the southwestern part of the county is a total loss. A belt of country about fifteen miles wide skirting the foothills yields a fair crop. Threlfall & Bros. have a wheat field of 8,000 acres near the town, and on Dry Creek another of 3,000. They get about half a crop.

The business of wool-raising assumes considerable importance in the county, and here largely engaged in it are Dingley & Enslin, T. P. Cary, and William Bach. A woolen factory is talked of, and the still abundant water-power suggests a promising future for the town.

One more backward glance through these eventful years reveals many a dark blot of tragedy, pitiful or criminal. Accident and crime have made their fearful record—but there is no need to recall it. Let it rather fall silently away among the shadows of the Past, while the town in its twenty-second year turns a new leaf and writes a fresh, fair page.

A swarm of bees at Janesville, Wisconsin, made fifty-three pounds of honey in fifteen hours.

## DOMESTIC ECONOMY.

### Economy in Selecting Carpets.

In selecting carpets for rooms much used, it is poor economy to buy cheap ones. Ingrain carpets, of close texture, and the three-ply carpets, are best for common use. Brussels carpets do not wear so long as the three-ply ones, because they cannot be turned. Wilton carpets wear badly, and Venetians are good only for halls and stairs.

In selecting colors, avoid those in which there are any black threads; as they are always rotten. The most tasteful carpets are those which are made of various shades of the same color, or of all shades of only two colors; such as brown and yellow, or blue and buff, or salmon and green, or of all shades of green, or of brown.

In laying down carpets, it is a bad practice to put straw under them, as this makes them wear out in spots. Straw matting laid under carpets makes them last much longer, as it is smooth and even, and the dust sifts through it. In buying carpets, always get a few yards over, to allow for waste in matching figures. In cutting carpets, make them three or four inches shorter than the room, to allow for stretching. Begin to cut in the middle of a figure, and it will usually match better. Many carpets match in two different ways, and care must be taken to get the right one. Sew a carpet on the wrong side, with a double wax thread, and with the hall-stitch. This is done by taking a stitch on the breadth next to you, pointing the needle toward you; and then taking a stitch on the other breadth, pointing the needle from you. Draw the thread tightly, but not so as to pucker. In fitting a breadth to the hearth, cut slits in the right place, and turn the piece under. Bind the whole of the carpet with carpet-binding, nail with tacks, baying bits of leather under the heads. To stretch the carpet, use a carpet-fork, which is a long stick, ending with notched tin, like saw-teeth. This is put in the edge of the carpet, and pushed by one person, while the nail is driven by another.

Straw matting is best for chambers and summer parlors. The checked, of two colors, is not so good to wear. The best is the cheapest in the end. When washed, it should be done with salt water, wiping it dry; but frequent washing injures it. Bind matting with cotton binding. Sew breadths together like carpeting. In joining the ends of pieces, ravel out a part and tie the threads together, turning under a little of each piece, and then, laying the ends close, nail them down with nails having kid under their heads.—Miss Beecher.

### TO PREVENT FLANNELS FROM SHRINKING.

In washing flannels, or other woollen articles, have the suds ready prepared, by boiling up and so dissolving small pieces of soap in rain-water, without soda; but do not use the suds when boiling; let them be lukewarm only when the articles are put in. The flannels should not be rubbed with a large piece of soap, nor should the material itself be rubbed as in washing linen, etc.; the fibres of the wool contain numberless little hooks, which the rubbing knots together; hence the thickening of the fabric, and consequent shrinking in dimensions. Well sluice the articles up and down in plenty of suds, which afterward squeeze (not wring) out. The clothes wringers, consisting of a pair of India rubber rollers, between which the clothes pass, are a great improvement upon hand labor—as, without injury to the fabric, they squeeze out the water so thoroughly that the article dries in considerably less time than it otherwise would do. After rinsing, squeeze out the water and dry in the open air, if the weather is such as to admit of the articles drying quickly; if not, dry in a warm room, but avoid too close proximity to a fire. Let any dust or mud be beaten out or brushed off prior to washing.

FRICASSEED CHICKEN.—Cut up the chicken, and boil with a slice or two of pork, in sufficient water to cover, till quite tender. Fry some pork, and when cooked a little, drain the chicken, and fry with the pork till quite brown. Then take out, and pour the broth into the frying-pan, with the pork fat, and make a gravy, thickened with brown flour; season well with butter, and put the chicken into the gravy. Be sure and have the fat quite hot when the chicken is put in, so it will brown readily.

### Eggs vs. Meat.

Would it not be wise to substitute more eggs for meat in our daily diet? About one-third of the weight of an egg is solid nutriment. This is more than can be said of meat. There are no bones and tough pieces that have to be laid aside. A good egg is made up of ten parts shell, sixty parts white, and thirty parts yolk. The white of an egg contains eighty-six per cent. of water; the yolk fifty-two per cent. The average weight of an egg is about two ounces.

Practically an egg is animal food, and yet there is none of the disagreeable work of the butcher necessary to obtain it. The vegetarians of England use eggs freely, and many of these men are eighty and ninety years old, and have been remarkably free from illness. A good egg is alive. The shell is porous, and the oxygen of the air goes through the shell and keeps up a sort of respiration. An egg soon becomes stale in bad air, or in air charged with carbonic acid.

Fresh eggs are most transparent at the center, old ones on the top. Very old ones are not transparent in either place. In water, in which one-tenth of salt has been dissolved, good eggs sink, and indifferent ones swim. Bad eggs float in pure water. The best eggs are laid by young healthy hens. If they are properly fed, the eggs are better than if they are allowed to eat all sorts of food.

Eggs are best when cooked about four minutes. This takes away the animal taste that is offensive to some, but does not so barden the white or yolk as to make them hard to digest. An egg if cooked very hard is difficult of digestion, except by those with stout stomachs; such eggs should be eaten with bread and masticated very finely.

An excellent sandwich can be made with eggs and brown bread. An egg spread on toast is food fit for a king, if kings deserve any better food than anybody else, which is doubtful. Fried eggs are less wholesome than boiled ones. An egg dropped into hot water and left till properly cooked, is not only a clean and handsome but delicious morsel. Most people spoil the taste of their eggs by adding pepper and salt. A little sweet butter is the best dressing. Eggs contain much phosphorus, which is supposed to be useful to those who use their brains much.—*Herald of Health.*

MANUFACTURE OF SODIUM.—An English magazine proposes a highly original method for the manufacture of sodium, on a large scale, that deserves to be tested. The vapor of chloride of sodium produced by passing hot air through melted salt is conducted over quartz or feldspar heated to whiteness. Chlorine gas is evolved, which can be economized in the manufacture of bleaching powders while the silica takes the soda in the form of silicate. The silicate of soda is afterward decomposed by heating it with lime and charcoal, and passing carbonic gas over it, as a reducing agent, producing silicate of lime and vapor of sodium, which latter must be condensed in naphtha.

If silicate of soda can be economically prepared in this manner it is a question whether the process could not be employed as a step in the manufacture of soda ash in preference to the famous invention of La Blanc.

BAKED PEACHES.—Cut the peaches in two, remove the stone, having first wiped the fruit well. With a paste cutter (if you want something fanciful, otherwise simple squares will do,) cut some slices of bread. On each piece place half a peach, skin side down, dust well with sugar, put a tiny piece of butter on each, and bake slowly. When done, dish them and turn the juice over, if any. Otherwise add syrup of peare and serve warm. Apricots and plants may be served likewise.

KANGAROO SOUP.—Ever since the establishment of English colonies in Australia, the excellence of the flesh of the kangaroo has been universally recognized. The tail is very muscular and fleshy, and soup made from this part of the animal is regarded as particularly rich and nourishing. Kangaroo tails in a perfectly fresh state are sent to England in hermetically sealed tins, and are sold under the name of kangaroo venison.

MEDICINE STAINS.—Medicine stains may be removed from silver spoons by rubbing them with a rag dipped in sulphuric acid, and washing it off with soap suds. It is much easier to remove the medicine stains from silver spoons, than from the body. The latter are rarely ever wiped out.



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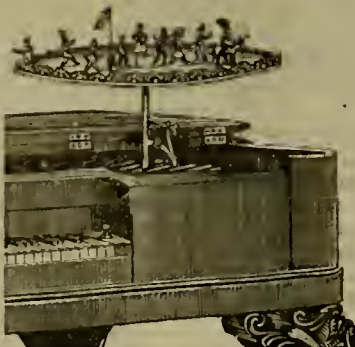
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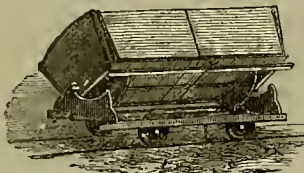


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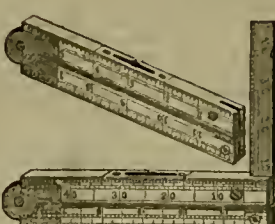
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Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

Passenger	Express	October 2,	Express	Passenger
Sunday	Train	1871.	Train	Sundays
excepted	Daily.		Daily.	excepted
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:58 P.M.
5:30 P.M.	7:30 A.M.	San Jose.....	5:30 P.M.	12:15 P.M.
8:28 P.M.	12:25 P.M.	Stockton.....	1:28 P.M.	1:32 P.M.
10:30 P.M.	2:10 P.M.	Sacramento.....	11:45 A.M.	5:00 A.M.
	4:10 P.M.	Marysville.....	9:10 A.M.	
	5:50 P.M.	Seaside.....	5:40 A.M.	
	2:30 P.M.	Sacramento.....	11:45 A.M.	
	5:25 P.M.	Colfax.....	8:45 A.M.	
	1:15 A.M.	Reno.....	1:00 A.M.	
	9:10 A.M.	Winnemucca.....	4:05 P.M.	
	12:00 M.	Battle Mountain.....	1:25 P.M.	
	4:40 P.M.	Elko.....	8:45 A.M.	
	6:30 A.M.	Ogden.....	5:20 P.M.	

SAN JOSE BRANCH.—LEAVE SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 3 P. M. daily. Returning  
leave San Jose at 7:30 A. M., daily, and at 3:30 P. M., daily  
(except Sundays).

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, "6:50,  
8:10, 9:40, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30  
and "11:50 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
LEAVE BROOKLYN, "5:15, "5:30, "7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.  
LEAVE OAKLAND, "5:25, "5:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.  
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:20, 9:40,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruit Vale only).  
LEAVE HAYWARD, "4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
LEAVE FAIR VALLEY, "5:25, 7:35, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.  
\*Sundays excepted.

CALIFORNIA PACIFIC RAILROAD.

4:00 P.M.	8:00 A.M.	San Francisco.....	11:30 A.M.	7:30 P.M.
5:50 P.M.	9:45 A.M.	Vallejo.....	9:45 A.M.	5:45 P.M.
9:30 P.M.	12:45 P.M.	Calistoga.....	7:30 A.M.	2:45 P.M.
8:15 P.M.	2:15 P.M.	Marysville.....	6:30 A.M.	1:00 P.M.
		Sacramento.....	7:30 A.M.	3:30 P.M.

Only one train Sunday—leaving SAN FRANCISCO 8:30 A. M.,  
Calistoga 3 P. M., Marysville 10:15 A. M., and Sacramento  
2:45 P. M.

SAN FRANCISCO & N. PACIFIC R. R.

.....	"2:15 P.M.	San Francisco.....	"11:00 A.M.	.....
.....	4:35 P.M.	Donahue.....	8:45 A.M.	.....
.....	5:00 P.M.	Petaluma.....	8:20 A.M.	.....
.....	5:58 P.M.	Santa Rosa.....	7:30 A.M.	.....
.....	6:45 P.M.	Headburg.....	6:45 A.M.	.....

\*Sundays excepted.

CAL. P. R. R. CO.'S STEAMERS.

"5:00 P.M.	"4:00 P.M.	San Francisco.....	"12:30 A.M.	"8:00 P.M.
6:30 P.M.	5:30 P.M.	Bonita.....	10:30 P.M.	5:00 P.M.
.....	2:00 A.M.	Stockton.....	4:30 P.M.	.....
		Sacramento.....	.....	12:00 M.

\*Sundays excepted.

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## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

When several assays of gold bullion are to be made together, the plan of operation is somewhat modified. Let it be required to conduct nine assays at once. Certain tools and appliances will be necessary which have not yet been described.

A piece of hard wood is made about four inches square and an inch in thickness. On one side a portion of the wood projects to serve as a handle; nine half inch holes are bored in the square part nearly through the thickness. On the under surface in each corner a small knob is screwed which serves as feet to raise the board above the table. In each of the holes is to be placed a tube of glass closed at one end. The other end is cut off square and ground flat on a grind stone or emery wheel. The size of the tubes is such that they can be easily removed and replaced in the holes. The tubes are a little more than an inch long, so that they can be easily grasped with the finger and thumb when it is required to remove them from the holes.

Each of the tubes are marked with a letter of the alphabet from A to I inclusive. This may be done with a writing diamond or with a corner of a freshly broken file. Near each hole is also stamped a letter, using the same set as those marked on the tubes. For want of a better name let this be called a "tube rack."

On commencing the assay the bars are first to be stamped with the running number of the assays, to correspond with the entries in the record book of the assay office. Similar entries are then made on a small memorandum book and to each entry the letters are added, thus, No. 794, A.—No. 795, B.—No. 796, C.—etc. The bars are then all taken to the anvil and assay chips are cut from them, or borings taken in the manner before described.

The clippings from the bar stamped 794 must be put into the tube marked "A," which is then placed in its proper hole. Those of 795 in the tube marked "B," etc., etc. The bars are then set aside and the tube rack taken to the balance. Here other pieces of apparatus will be required. A square block of wood with a single hole bored in it the same size and depth of those in the tube rack, and another square piece of wood with handle of the same size and thickness as the tube rack; but instead of holes, nine hemispherical cavities are cut, each of which is about an inch in diameter, and half an inch deep. These cavities are marked with the same letters and in the same succession as those of the tube rack.

The tube marked "A" is lifted from the rack and placed vertically in the hole in the block, which serves for a temporary stand for it. The clippings that are contained in it must previously be poured out on a clean piece of paper placed for convenience inside the balance case. After the assays are weighed out the remaining gold is put back into the tube rack. The assays in their leaden envelopes are placed in the cavity marked "A." "B" is then treated in the same way, and so on through the whole set.

Nine cupels are then marked and placed in the muffle in the same order and with the same letters. The object of marking the cupels is, that it is sometimes necessary to change their position in the muffle. And sometimes even to take one or more of them out, before the others are finished.

The manner of marking the cupels is as follows: Some red chalk is ground fine, mixed with water and kept in a small wide mouthed bottle for use. When it is required to mark cupels, the contents of the bottle are mixed and applied with a small camel's hair brush. The cupels should be marked on two sides.

When the cupels are taken from the muffle, they are placed in a rack of sheet iron divided into nine compartments, and when the buttons are removed they are placed back into the cavities in the board from which they were taken when placed in the cupels. This serves to convey them to the balance when they are weighed, alloyed with silver and returned to the muffle for second cupellation. It will be seen that to this stage the assays are always kept in compartments bearing their mark, and with ordinary care no mistake can occur.

When the assays are alloyed with silver and rolled out, a letter is stamped on the end of each, somewhat deeply. The assay is then rolled up in spiral form in the usual manner commencing at the end which is not stamped. This letter will be as distinctly seen after boiling in acid as before. The cornets are then placed in flasks, boiled with acid and dried in the usual manner.

It has been recommended to place all of the cornets in one flask and after boiling, to invert it in a somewhat capacious dish of water; to pick out the cornets with a pair of forceps, and to anneal them altogether in the muffle on a tile. I have never tried it, but I consider it to be unsafe, as with the best of care the cornets are sometimes broken in the boiling. The elegant plan of boiling a number of cornets in baskets

of platinum wire, in the same vessel, is open to the same objection.

The manner of using the proof is as follows: first consider what will be the average fineness of the assays you are conducting. Your preliminary assays will furnish you the data. Let it be supposed that this average will be .950 weigh out 950-thousandths of pure gold, alloy it with 2½ its weight of silver and cupel it in the muffle with the nine assays, boil with the same acid, and under exactly similar circumstances, heat it to redness in a dry cup and weigh it. It will generally be found to have increased in weight owing to the surcharge being in excess of the mechanical loss. What the proof has gained in weight must be subtracted from the other assays, when many assays are to be made from the same mine; an alloy of copper, silver and pure gold must be made up as nearly identical as can be with the composition of the bullion, and this alloy used as a proof. Of course a full unit must be employed in this case.

There are a few points to be borne in mind in making the bullion assay to insure success. The alloy of gold and silver should not be rolled out too thin as it is likely to be broken when this precaution is disregarded.

The cornet must never be weighed without being heated to redness. Simple drying will not give correct results.

In boiling with acid, the flasks should be turned on their sides at an inclination of 45° to prevent loss of acid in the event of sudden ebullition.

A graduated measure should be used for the acid, that the amount put in each flask shall be equal.

Common water should never be used in washing the cornet, as chloride of silver is formed in the pores of the gold, which cannot be removed, and which being insoluble in acid remains in the cornet and gives incorrect results.

Gold is always weighed in Troy ounces and decimals. It is best to have the ounces in decimals also. A convenient set should be constructed as follows:

Ounces.	Decimals
500	0.500
300	.300
200	.200
100	.100
50	.050
20	.020
10	.010
5	.005
2	.002
1	.001

Before using a set of weights they should be tested for accuracy, and compared with a standard set.

Although it is better to be provided with a full set of weights and a good bullion balance, still it is possible to weigh very closely with a set of 20 ounces and decimals, and a set of avoirdupois pounds on a good common balance, by counterpoising, which has been before described. Each pound avoirdupois is 15.5833 Troy ounces. What the bar lacks of a pound must be made up with Troy ounces and decimals. The number of pounds is to be multiplied by the factor given above and this sum added to the ounce weights used to complete the weighing. The result will be the weight of the bar in Troy ounces and decimals. Of course the pound weights must be examined and their accuracy verified.

It may sometimes be interesting to know the relation between the fineness of gold and its value in carats. Pure gold (1000 fine) is said to be 24 carats fine, 12 carats would evidently be 500 fine or one-half gold—all gold is so computed in England, the standard being 22 carats; gold of 23 carats is said to be one carat "better" as 21 would be one carat "worse."

The following table will show the relative value:

Carats.	
1	0.041667
2	.083334
3	.125001
4	.166667
5	.208333
6	.250000
7	.291666
8	.333333
9	.374999
10	.416667
11	.458333
12	.500000
13	.541667
14	.583333
15	.625000
16	.666667
17	.708333
18	.750000
19	.791666
20	.833333
21	.874999
22	.916667
23	.958333
24	1.000000

**ANTI-SCALE COMPOUND.**—We would call the attention of engineers and others to the advertisement, in another column, of Rickard & Durden's Anti-Scale Compound, one of the most valuable preparations for the purpose intended, which has ever been presented to the public. A full notice of this preparation was given in the SCIENTIFIC PRESS about three months since.

**A CANDIDATE.**—Mr. Ira H. Reed, of West Point, Calaveras Co., an old subscriber and reliable correspondent of the SCIENTIFIC PRESS, announces to us that, although no politician, he is a candidate for engrossing clerk of the next State Assembly.

## Removal.

The entire business office of the SCIENTIFIC PRESS, PACIFIC RURAL PRESS, and our U. S. and Foreign PATENT AGENCY and ENGRAVING establishment, has been removed to No. 338 Montgomery street, on the southeast corner of California street, diagonally opposite Wells, Fargo & Co.'s.

**COMBINATION GRAIN HARVESTER.**—B. F. Cook, of Napa, the inventor of several interesting machines, (some of which have been patented) has combined a Haines' header with a Pitts' thresher, and a portable threshing engine, whereby he cuts the grain in the field, threshes, cleans and sacks it in one operation. His model at the State Fair showed the plausibility of his plan in theory. He adjusts the machinery so that all the work of cutting, threshing and cleaning can be done by the power of the engine if desired, so as to leave no work for the teams, but to draw the machine. He has an ingenious method of leveling parts of the machine, whereby the engine and boiler can be kept constantly level over uneven or sideling ground. Working experiments in the field have convinced Mr. C. that his machine is practical, and we hope we will find ample means to help him demonstrate most speedily its value. His machine is calculated to cut 18 feet wide.

**"ABOUT THE LOSS OF QUICKSILVER."** The communication under the above title, which appears on the third page of the present issue, found its way there through inadvertence. The writer evidently misunderstands both the nature of the information asked for by Mr. Paul, and the object in seeking that information; and we presume no miner will be so misled as to suppose that Mr. P. has any other object in view in seeking for the information than the general benefit of the miners themselves.

**THE GOLDEN STATE Iron Works** (co-operative) are putting up a number of Stevenson's mouldboard plows of a large size, and some eight-foot settlers, for the Metropolitan Mill and Mining Co., Eureka, Nevada. They are also making some large hydraulic and screw presses for the vineyards of Eberhardt and Lachman. The castings and condensers for the Knox and Osborne's Patent Furnace for the Phoenix Quicksilver Mine in Pope Valley, Napa Co., are under way. The men are also at work on large quantities of White and Grey Iron castings for stamp and pan shoes and dies.

**IMPORTANT WATER SUIT.**—A suit involving the title to certain water privileges, was decided last week by Judge Field. The action was brought by the City of Gold Hill Water Co. to enjoin the Cole S. M. Co. from certain water privileges. A temporary injunction was allowed by the United States Circuit Court. The case was subsequently heard by Judge Field, Associate Justice of the U. S. Supreme Court, who made an order dissolving the injunction, leaving the Cole S. M. Co. in possession of their privileges.

## State Fair Gold Medals.

By an advertisement in RURAL PRESS it will be seen that all claimants to the State Agricultural Society's Gold Medals are required to furnish statements relative to the manufacture or production of the articles exhibited, and on which they claim the award of the medal, or upon which they base their claim of merit.

**THE SAN FRANCISCO GLASS WORKS**, situated on King street near Fourth, in this city, commenced operations again on the 12th inst. Mr. Newman, who is in charge, informs us that everything is now in readiness for orders in this line.

**AVERILL'S CHEMICAL PAINT.**—An advertisement of this valuable product will be found in another column. This is the same paint of which we gave a lengthy description in our last week's issue.

Complete Volumes of the Scientific Press from January, 1864, can be had at this office at \$3 per volume. Bound in cloth, \$5. A limited number only on hand.

**COUGHS.**—THE ADMINISTRATION OF MEDICINAL PREPARATIONS in the form of a lozenge is of all modes the most eligible and convenient, more especially as regards a COUGH REMEDY. "Brown's Bronchial Troches," or Cough Lozenges, allay irritation which induces coughing, giving instant relief in Bronchitis, Hoarseness, Influenza, and Consumptive and Asthmatic complaints.

Opera Glasses, Pebble Spectacles, and Eyeglasses, in great variety, wholesale and retail. C. MULLER, Optician, 205 Montgomery street, Russ Block, San Francisco. 7v23-3m

## Scientific and Practical BOOKS

## MINING, METALLURGY, ETC.

BY GUIDO KUSTEL

MINING ENGINEER AND METALLURGIST.

Published and Sold by DEWEY &amp; CO.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick-silver. 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus. It is a work of great merit, by an author whose reputation is unsurpassed in his speciality. Price \$2.50 coin, or \$3 currency, postage free.

**Concentration of Ores** (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequalled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, \$7.50, postage paid.

**Nevada and California Processes of Silver and Gold Extraction**, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, \$5 in cloth; \$6 in leather—coin. For single copies of the above works, or for the trade, address

DEWEY &amp; CO.,

Publishers and Patent Agents, Scientific Press Office San Francisco.

## Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CATOYES, and other "Varmints."

This Trap, as may be seen, is of simple construction, and not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer, D. N. PHELPS, al-ly-awhp San Leandro, Alameda County, Cal.

## OPAL GAS GLOBES.

An Entirely New Article, with

## Patent Double Burner.

For Softness and Brilliancy of Light it has no equal.

For Sale by

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## BETT'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, THAT BETT'S NAME IS ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said the Capsule are not used merely for the purpose of the ornament but that they are serviceable in protecting the wine from injury, and insuring its genuineness. MANUFACTURER:—1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

J. M. STOCKMAM,

Manufacturer of

PATTERNS AND MODELS.

(Over W. T. Garratt's Brass Foundry).

Entrance, No. 129 Fremont street, San Francisco. 8v23-3m



## Mining and Other Companies.

Being the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

## Bellevue Mining Company—Location of works, Ophir District, Placer County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 13th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
W P C Stebbins.....	31	25	\$25 00
Henry Baker.....	17	25	25 00
Henry Baker.....	18	25	25 00
Theodore E Baugh.....	37	100	100 00
Theodore E Baugh.....	38	100	100 00
Theodore E Baugh.....	39	100	100 00
Theodore E Baugh.....	40	100	100 00
Theodore E Baugh.....	42	100	100 00
Theodore E Baugh.....	43	44	44 00
A C Peachy.....	56	100	100 00
A C Peachy.....	57	100	100 00
A C Peachy.....	58	100	100 00
A C Peachy.....	59	100	100 00
A C Peachy.....	60	100	100 00
A C Peachy.....	61	100	100 00
A C Peachy.....	62	100	100 00
A C Peachy.....	63	100	100 00
A C Peachy.....	64	100	100 00
A C Peachy.....	65	101	101 00
John McFaddin.....	11	50	50 00
John McFaddin.....	10	100	100 00
John McFaddin.....	22	25	25 00
John McFaddin.....	16	25	25 00
W H V Cronise.....	74	50	50 00

And in accordance with law, and an order of the Board of Trustees, made on the 13th day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street, San Francisco, Cal., on the 23d day of October, 1871, at the hour of 12 o'clock m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

Office, 409 California street (up stairs), San Francisco, Cal. oct-3w

## Highland Silver Mining Company—Location of works, Railroad District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of October, 1871, an assessment (No. 3) of Ten Cents per share was levied upon the capital stock of said company, payable immediately, in United States coin, to the Secretary, at No. 28, Merchants' Exchange, San Francisco, California. Any stock upon which said assessment remains unpaid on Monday, the 18th day of November, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. oct-4w

## Nevada Land and Mining Company—Location, Spruce Mountain, Antelope and Chilton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of October, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Saturday, the 11th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California. oct-4w

## Noonday Silver Mining Company—Location of works, White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of October, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company, Room 5, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. MAGUIRE, Secretary.  
Office, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. oct-4w

## North America Consolidated Mining Company—Location of works, White Pine county, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 31st day of July, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Eaton, J A Trustee.....	62	100	\$20 00
Eaton, J A Trustee.....	71	400	80 00
Eaton, J A Trustee.....	75	200	40 00
Eaton, J A Trustee.....	76	300	60 00
Eaton, J A Trustee.....	78	100	20 00
Lewis, J F.....	5	1000	200 00
Lewis, J F.....	250	50 00	
Lee, G P.....	56	20	4 00
Magee, J E.....	73	300	60 00
Pinkham, S.....	20	666	133 20
Pinkham, S.....	45	166	33 20
Spinny, G R.....	12	666	133 20
Spinny, G R.....	46	166	33 20

And in accordance with law, and an order of the Board of Trustees, made on the 31st day of July, 1871, "and one subsequently made on account of postponement," so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on the 15th day of October, 1871, at the hour of 2 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expense of sale.

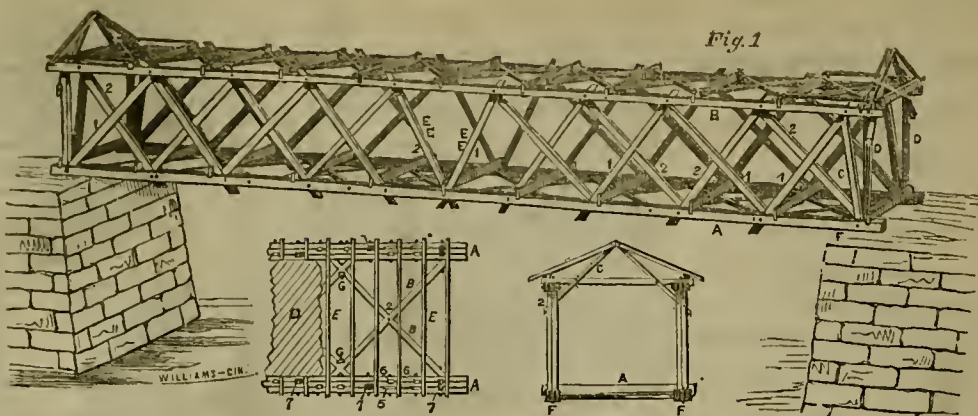
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. oct-3w

## Pocahontas Gold Mining Company—Location of Works, Mud Springs, El Dorado county, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of September, 1871, an assessment of three dollars (\$3) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 28th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room No. 28, 419 California street, San Francisco, California. oct-24d

## PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature. The timber used is placed so directly in the line of strain, that less material is required to support the same load. It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN. Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition. Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.

F. MALOON, Secretary.

W. H. GORRILL, President.

## Piermont Milling and Mining Company—

Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the fourth (4th) day of September, A. D. 1871, an assessment (No. 1) of one dollar and twenty-five cents, per share was levied on the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 48 California street, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 8th day of October, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock p. m. of Wednesday, the 8th day of November, A. D. 1871, will be sold to pay the delinquent assessment, together with the costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

oct-4w

POSTPONEMENT.—The day for deeming stock delinquent on the above assessment is hereby postponed until Thursday, the 9th day of November, A. D. 1871, and the sale thereof until Friday, the 8th day of December, A. D. 1871. By order of the Board of Trustees.

## Quail Hill Mining and Water Company—

Location of works, Calaveras County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 16th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
W H V Cronise.....	26	1	\$20 00
W H Sharp.....	28	1	20 00
A E Hill, Trustee.....	31	50	100 00
A E Hill, Trustee.....	37	119	2380 00
L F Loveland, Trustee.....	36	60	1200 00
A E Hill, Trustee.....	39	120	2400 00
A E Hill, Trustee.....	40	7	140 00
F S Spring, Trustee.....	41	120	2400 00
E F Dennison.....	42	1	20 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street (up stairs), San Francisco, Cal., on the 16th day of October, 1871, at the hour of 12 o'clock m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. F. CRONISE, Secretary.

Office, 409 California Street, San Francisco, Cal. oct-3w

## Silver Sprout Mining Company—Location of works and mines, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 318 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, No. 318 California Street, San Francisco, Rooms Nos. 1 and 2, second floor. oct-4w

## SANBORN &amp; BYRNES,



South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners Billiard Balls and Ten Pins. Fancy Newels and Balusters.

21v22-6m.

## Wanted.

We desire to make arrangements with a reliable man to act as general agent for Oregon and Washington Territories, to sell a new and valuable article, WIESTER & CO., 17 New Montgomery st., S. F.

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Blank Books, Stationery, Wrapping and Cartridge Papers, &c., &c

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327, 329 & 331 Sanson St. San Francisco. 19v22comly



Under a Burning Sun, where Bilious affections and Fevers of various descriptions so generally prevail, Tarrant's Effervescent Seltzer Aperient

Has been successful beyond all parallel. Hence the physicians of the tropics give their emphatic sanction, prescribing it in preference to every other aperient in use. The patient, of course, gladly acquiesces, for this preparation is one of the most delightful, as well as mild and cooling cathartics, chemistry has yet devised, and possesses every medical virtue of the far-famed German Seltzer Spa. It is a powder that only requires the addition of water to produce in an instant a delicious effervescent beverage, as well as an invaluable medicine. Ask for and accept none but the genuine.

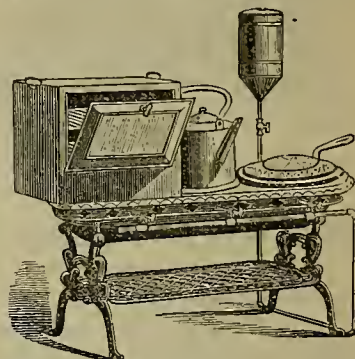
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Patent Office Models made with neatness and dispatch at Reasonable Rates. 247 Fourth street. oct-4tf

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WILLIAM FRIEL, Manufacturer,

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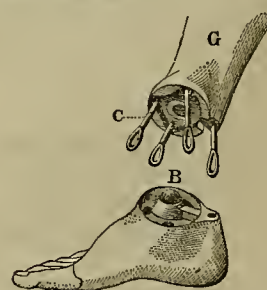
All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasoline and Patent Oils for Stoves and Lamps for sale. County Rights for sale. 19v23-3m

## MENZO SPRING,

Manufacturer of Dr. Douglas Bly's

## Patent Artificial Limbs,

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All other kinds changed and repaired. The late improvements on the Dr. Bly Limbs, especially his two best Legs (one with, the other without lateral motion at the ankle joint), make them far superior to all other Artificial Legs in use. (See illustration of Anatomical Leg, No. 8, present volume).

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20v17



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Steam Engines and Boilers,

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And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B. Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.

## FULTON

Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,  
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

GEORGE T. PRACY,  
MACHINE WORKS,109 and 111 Mission Street,  
SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY,

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR  
Pracy's Celebrated Governor.  
TURNING LATHES, Etc., constantly on hand.  
4v23tf

## PACIFIC

Rolling Mill Company,  
SAN FRANCISCO, CAL.Established for the Manufacture of  
RAILROAD AND OTHER IRON  
AND—  
Every Variety of Shafting.Embracing ALL SIZES of  
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames—ALSO—  
HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron. 5v143m

THOMPSON BROTHERS,  
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,  
of every description, manufactured 24v16qr

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

I. L. MORTLHAP, President. 7v23tf

## I. N. WILFONG'S

PATENT CIRCULATING

## STEAM BOILER.

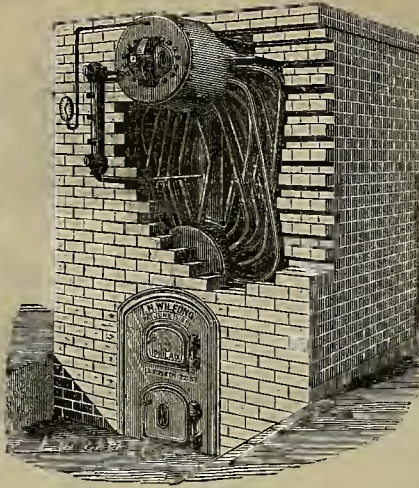
This cut represents an improvement on the old style of Cylinder Boiler, and combines all the following great advantages: Rapid circulation and generation of steam; economy in fuel; durability, safety, and simplicity of construction; requires but little attention; is easily repaired, and moderate at first cost.

We have now a number in successful operation, and respectfully refer to the following well known parties: Hastings &amp; Co., Seventh and Cherry streets; Jos. Lea &amp; Co., 128 Chestnut street; J. S. Huber, Germantown; Holt &amp; Bro., Sixth and Susquehanna avenue; Albion Print Works, Conshohocken, Pa.; S. H. Dickey, Oxford, Pa.—all of which are giving ENTIRE SATISFACTION. Parties wishing to investigate the success of our new Boiler can do so by calling at any of the above named places, or to

I. N. WILFONG,

131 and 135 North Twenty-second St.,  
PHILADELPHIA, PA.,

Manufacturer of all descriptions of Boilers (Rogers &amp; Black's patent included), Tanks, Stills, Pans, and general Iron Work. Orders solicited from all parts of the country, and, when received, promptly attended to. State and County Rights and Royalties for sale as above. 5v23-6m-6ow



## To Coal Operators, Miners and Railroad Corporations

YOUR ATTENTION IS INVITED TO

## THE GRICE &amp; LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. &amp; L. were the PATENTEE'S AND BUILDERS OF THE FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressures

## BOILERS

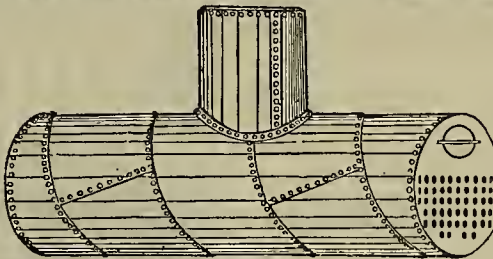
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

## SPIRAL BOILER.



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Sheet Iron Work

or every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

## THE RISDON

Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.  
CAPITAL.....\$1,000,000.

LOCATION OF WORKS:

Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors: Wm. Alvord, C. J. Brennan, C. E. McLane,  
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,  
James D. Walker.WM. H. TAYLOR.....President.  
C. E. McLANE.....Vice President.  
JOSEPH MOORE.....Superintendent.  
LEWIS R. MEAD.....Secretary.  
24v17-qy

## UNION IRON WORKS,

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WILLIAMS, ROOT &amp; NELSON,

MANUFACTURERS OF

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CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR.

WILCOX'S PATENT WATER LIFTERS,

Donbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

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COLUMBIA  
Co-operative Foundry Company,  
(INCORPORATED MARCH 16, 1871),  
133 and 135 Beal Street, between Mission and Howard  
SAN FRANCISCO.

Manufacturers of

MACHINERY AND CASTINGS

of every description.

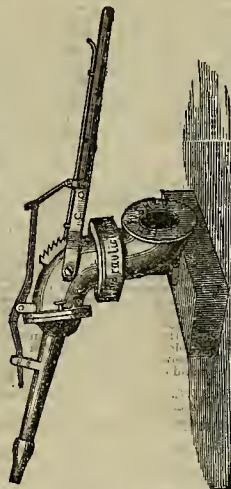
Particular attention given to Castings for Mills and House Irons. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

## Machinery.

## HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE.

is the Best Hydraulic Machine in Use.

MACHINES MANUFACTURED TO ORDER,  
to throw from one to an eight-inch Stream.

9v23-4f

Address F. H. FISHER, Nevada, Cal.

## JOS. THORNHILL,

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Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &amp;c., Orders left with C. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

## California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF,

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REAPER AND MOWER SECTIONS, BARS  
AND KNIVES COMPLETE.

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 6v19-qy

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Oam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbag," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

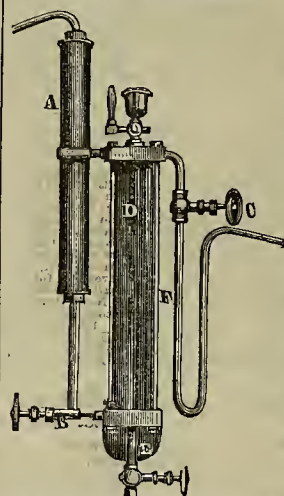
Ten of these Mills are now in operation.

For further particulars address

FURMAN K. WILSON,

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## GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, COR. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION.—D, is a glass chamber which contains the lubricant. G is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the ejection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. 14v15-1f

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AGENTS FOR

Dufour &amp; Co.'s.,

Celebrated Dutch

Anchor brand Bolt-

ing Cloths; Snut

Machines; Brass

Dnsters; Mill Picks;

Mill Picks dressed;

Mill stones repaired

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MANUFACTURERS OF

French Burr Mill

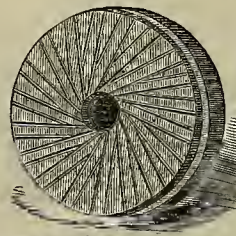
Stones, Portable

Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed,

Salt, Paints, Drugs, &amp;c. Mills specially adapted for

Sanding Quartz. 41 First st., San Francisco. 6v22-17ms

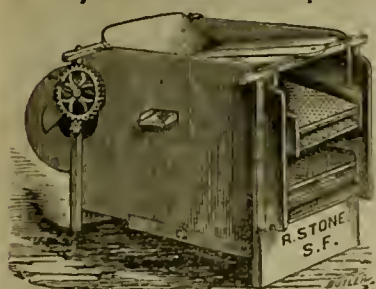
McAFEE, SPIERS & CO.,  
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco. 2v21-1f



# THE PATENT Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.  
For further information apply to  
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## WOODWORKING MACHINERY

MOLDING, MORTISING, TENONING AND SHAPING MACHINES, BAND SAWS, SCROLL SAWS, Planing & Matching MACHINES, ETC., For Railroad, Car, and Agricultural Sheds, Etc., Etc. Superior to any in use.

**J. A. FAY & CO.,**  
CINCINNATI, OHIO.  
11v23-6m

## POWER, TAITER & CO.,

MANUFACTURERS OF

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3003 Chestnut street (West and Chestnut street Bridge), PHILADELPHIA.  
Woodworth Planers a Specialty. 2v23-1y

## DEACON & CO.,

MACHINE WORKS,  
West side of Main Street,  
Between Mission and Howard..... SAN FRANCISCO.

ALL KINDS OF  
STEAMBOAT WORK, JOBBING AND REPAIRING DONE PROMPTLY.

Steam Engines, Pumps, and Mill Work.  
7v23-3m

## CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna, SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbit Meta Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Radder Straps, Hinges, Ship and Steamboat Sells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.  
PRICES MODERATE.  
J. H. WEED V. KINGWELL

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AGENTS FOR  
**Thomas Firth & Sons' Cast Steel.**

MANUFACTURERS OF  
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-shoers' Tools.  
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MANUFACTURERS OF  
**Diamond-Pointed Drills**  
AND DRILLING MACHINERY.  
For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 16, No. 315 CALIFORNIA STREET, San Francisco. 25v20-3m

## The Stetefeldt Furnace.

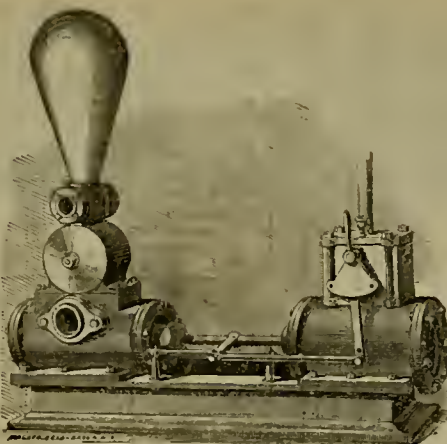
For information of any description respecting this process,  
**APPLY TO**  
**STETEFELDT FURNACE COMPANY.**  
Duncan's Building, Room 1, California Street, 4v21-1y San Francisco.

# NIAGARA STEAM PUMP WORKS.

**FIRST PREMIUM**  
American Institute, 1867 and 1870.  
**CHARLES B. HARDICK,**  
23 Adams Street, Brooklyn, N. Y  
SOLE MANUFACTURER

Hardick's Patent Double-Acting Steam Pump and Fire Engine.

PATENTED IN ENGLAND, BELGIUM AND FRANCE. SEND FOR CIRCULAR.  
22v26t-cow



# THE SELDEN PUMP.

PATENTED  
Aug. 2, 1870.  
Dec. 20, 1870.

Combines Simplicity and Durability to a Remarkable Degree.  
Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—especially Mining.  
Full description in *Scientific Press* of August, 1871.  
Catalogues sent on application.

**A. CARR,**  
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7v23-1y-cow  
AGENT WANTED for Pacific Slope.

CAMERON'S  
**STEAM PUMPS.**  
PICKERING'S  
**Engine Regulators.**  
GIFFARD'S  
**INJECTORS.**  
BARTOL'S  
**STEAM TRAP.**  
Surface Condensers.  
**DAVID STODDART,**  
114 BEALE STREET, S. F.

# HUGHES' PATENT REMOVABLE GLOBE LANTERN.

Since the time when King Alfred made the first lantern by surrounding a candle with a transparent casing of horn, this class of appliances has been one of the greatest utility and most extended use. Among the latest improvements in its construction is that illustrated in the accompanying engravings, and designed to secure the threefold object of providing for the easy cleansing of the glass portion, the secure retention of the upper in place upon the lower part of the lantern, and the affixing of the handle to the top of the lantern in a durable and efficient manner. The base of the lantern is provided with the usual detachable lamp, and at one side has hinged to its upper edge a wire frame designed to carry and protect the glass portion or body of the lantern, and at the upper end of which is the cylindrical top, perforated in the ordinary manner to permit the escape of the products of combustion from the lamp. Arranged at that side of the base opposite the hinge is an angular spring-catch so applied as to catch over the annular lower rim of the wire frame, and in conjunction with the hinge, to hold the said frame firmly in place upon the base as required when the lantern is in use.  
This Lantern is offered as

The Best and Most Desirable in Use,  
all things considered. Its price is reasonable, and when once tried no other will be accepted.  
Individuals, Dealers, Railroad Companies, and all persons and institutions about to purchase Lanterns, should inquire for this kind; and if not for sale in your locality, address the inventor for circular of full description, price list, etc.  
Patented August 10 and December 28, 1869, by  
**JOHN HUGHES.**  
Address 1811 Sidney street, East Birmingham, Pa.  
3v23-2tam6m

# SHEET IRON PIPE. THE Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,  
Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.  
All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.  
24v22-3m **JOSEPH MOORE,** Superintendent

THE  
**Gutta Percha and Rubber Manufacturing COMPANY,**  
109 California street, SAN FRANCISCO.  
Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose, Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Cocks, Pure Vulcanized Sheet Rubber, Fire Buckets.  
12v23-3m **J. W. TAYLOR,** Agent.

# Metallurgy and Ores.

**RODGERS, MEYER & CO.,**  
COMMISSION MERCHANTS,  
ADVANCES MADE  
On all kinds of Ores, and particular attention PAID TO  
CONSIGNMENTS OF GOODS.  
4v16-5m

**Richardson & Co., Copper Ore Wharves, SWANSEA.**  
RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 5v22-1ys

**LOUIS FALKENAU,**  
STATE ASSAYER,  
Analytical and Consulting Chemist,  
421 Montgomery St. up stairs.  
Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.  
One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

**LEOPOLD KUH,**  
(Formerly of the U. S. Branch Mint, S. F.)  
Assayer and Metallurgical CHEMIST,  
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(Opposite the U. S. Branch Mint.)  
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**NEVADA METALLURGICAL WORKS.**  
19 and 21 First st., in Golden State Foundry.  
**RIOTTE & LUCKHARDT.**  
Ores Crushed, Sampled and Assayed.  
Having added Pans, Assay office and Chlorination Apparatus to our establishment, we are now prepared to make working tests by any process, assay ores and products. Returns guaranteed. Answers to all metallurgical questions given. 26v21-3m

**CALIFORNIA ASSAY OFFICE**  
No. 512 CALIFORNIA STREET,  
One Door West of Montgomery..... SAN FRANCISCO.  
**J. A. MARS,** Assayer.  
Analysis of Ores, Mineral Waters, etc. 10v26

O. W. STRONG. W. L. STRONG  
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Metallurgical Works,  
No. 10 Stevenson Street, near First, SAN FRANCISCO.  
We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22t

**PLATINUM**  
Vessels, Apparatus, Sheet, Wire, Etc., Etc.  
For all Laboratory and Manufacturing Purposes  
**H. M. RAYNOR,**  
26 Bond street, New York.  
Platinum Scrap and Ore purchased. 22v18t

**Varney's Patent Amalgamator.**  
These Machines Stand Unrivaled.  
For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repair. The constant and increasing demand for them is sufficient evidence of their merits.  
They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.  
This Amalgamator Operates as Follows.  
The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular row between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.  
Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.  
Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

**GOLD-SAVING**  
**Silver-Plated Amalgamating Plates**  
FOR MINERS AND MILL MEN,  
At San Francisco Plating Works, 655 Mission Street, San Francisco.  
Goods of every description Plated.  
Old Goods Re-plated.  
24v22-3m **E. G. DENNISTON,** Proprietor.

**STEINWAY & SONS' Patent Agraffe Pianos, GRAND, SQUARE AND UPRIGHT.**  
Pianos to Let.  
**A. HEYMAN,**  
1 street, between Sixth and Seventh, Opposite old Capitol, SACRAMENTO.  
ma18-tf



## AN INVENTOR'S OPINION.

SACRAMENTO, Oct. 7, 1871.—Messrs. DEWEY & Co.—Dear Sirs: My patent for casting Aluminum Dental Plates came duly to hand. It seems to me to be complete in all its parts. In view of the fact that there are already about five patents for casting this metal into Dental Plates, I think the case has been well handled. For this and for your forbearance in my over anxiety, receive my hearty thanks. F. M. SHIELDS.

Office or Shop Room  
TO LET.

Two Rooms (or one large room), with sunny front, to let at favorable rates at 414 Clay street. Enquire at this office or on the premises.

## IMPORTANT TO MINERS.

A CHEAP AND DURABLE DEVICE FOR SAVING FINE GOLD AND QUICKSILVER.

Frey's Improvement on Evans' Under-current Sluices.

This is a sluice made of cast-iron, with transverse corrugations on the bottom, semi-circular in shape and three inches deep. At the bottom of each alternate corrugation is a narrow slit through which the heavier material falls down into another riffle below with larger corrugations. Both riffles are set on the same grade, which should be about one foot in twelve. The lower box is charged with quicksilver. These Sluices do not clog, nor do they require any attention beyond cleaning up once a week. These sluices have stood the test of use in quartz mills below all the contrivances for saving gold and have made large returns of gold, silver, concentrated sulphurets and quicksilver, that would otherwise have been lost. From the Green mine, Ophir District, Placer county, I have received the following certificate:

Ophir, August 5th, 1871.

Dr. Jos. M. Frey—Dear Sir: Having been engaged as amalgamator in Green & Co.'s mill, where we are using the Hepburn pans and settler, and having below the settler a set of Frey's Under-current Sluices and Riffles, I am well satisfied, after some sixteen years experience in the use of various modes and machines for amalgamation of ores, that your Riffle is capable of concentrating and saving most of the fine quicksilver and light amalgam, in which consists the great source of loss by every known process of working ore.

(Signed) Yours respectfully, J. R. MORRIS. Also, from E. N. Riette, of Nevada Metallurgical Works, 21 First street, San Francisco:

Dear Sir: Having had opportunity to watch your Corrugated Riffles, in operation for over a month at Reno, I can say that these Riffles work splendidly as quicksilver savers and concentrators of unroasted ore. I have also no doubt that they could save very fine gold, as for instance in black sand or slimes, better than any like apparatus in use. Respectfully, (Signed) E. N. RIETTE.

Assay of tailings saved at the Rhode Island Mills, Nevada, by these Sluices:

Gold.....\$75 24  
Silver.....76 96  
Quicksilver.....260 lbs. to the ton  
This was the saving of one week.  
For further particulars address WATERS & CO., No. 54 J street, Sacramento, the Agent for the State. se23-3m

## AMMONIACAL PREPARATION

—FOR THE—

## Prevention and Removal of Boiler Scale.

MANUFACTURED BY THE

San Francisco Gas Company.

F. I. CURREY, Sole Agent, San Francisco Boiler Works, 123 and 125 Beale street, San Francisco.

This Preparation is proved by the experience of many of our best machinists and engineers to be a perfect cure for the vexatious and dangerous incrustation known as Boiler Scale. It is sold in 5-gallon cans at \$5.25 per can, or in cases of two cans each at \$10.50 per case.

The San Francisco Gas Company also manufactures

Carbonate of Ammonia.

Muriate of Ammonia.

Sulphate of Ammonia.

Liquor Ammonia, Concentrated.

Aqua Ammonia, F. F. F.

Concentrated Crude Ammonia, for Ice Making and other manufacturing purposes.

9v23-3m

## The California Powder Works

No. 314 CALIFORNIA STREET,  
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

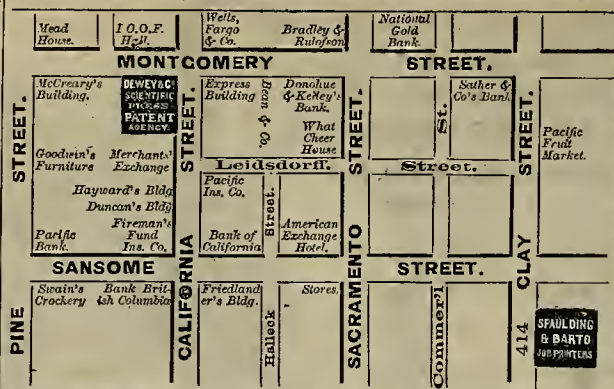
A circular containing a full description of this Powder can be obtained on application to our Office. 16v20-3m JOHN F. LOISE, Secretary.

Having Removed, Oct. 1, 1871, to more pleasantly and centrally located quarters, we shall be pleased to receive our friends and patrons at our new location, designated on this diagram.

(JOHN L. BOONE, A. J. DEWEY, W. B. EYER, GEO. H. STONG.)

DEWEY & CO.

## DEWEY &amp; CO., Pacific Rural and Scientific Press

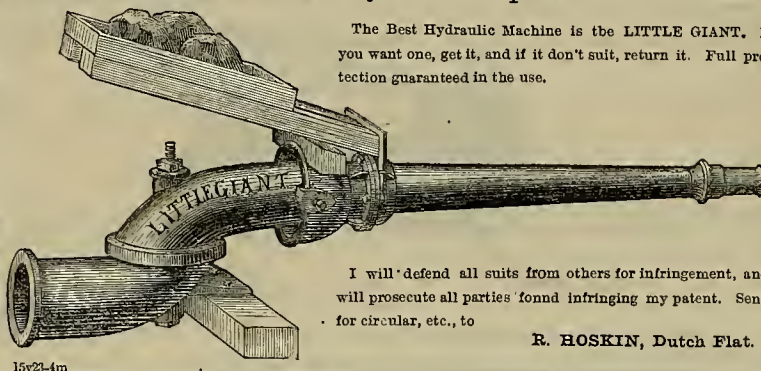


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Diagram of prominent streets near Scientific Press Office.

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AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, OCTOBER 21, 1871.

VOLUME XXIII  
Number 16.

## INTRENCHING TOOLS.

In an article in the *Engineer* which refers to the growing improvements in musketry fire, and the consequent imperative demand in military operations for such shelter as can be obtained by pits and trenches, there is a description, which we transfer, of a combined spade and pick invented by Captain Stewart Harrison, of the First London Engineers. The tool itself is represented in Fig. 1, in which it will be seen that the pick and spade are hinged at their junction, so that when the spade is in use the pick lies in a groove in the handle of the tool, surrounded and secured by a telescopic sheath. When the pick is to be used, it is turned on the hinge till it and the spade are at right angles to the handle, in which position it is also secured by the telescopic sheath. The tool is also intended to serve as a mantlet in combination with the earth thrown up. This use is illustrated by Figs. 2, 3 and 4.

Embrasures are prepared in the earth-work by building up in it funnels made by rolling up a fabric composed of cloth with strips of wood attached, or made up of telescopic sections of zinc or thin iron, like a pocket drinking cup without a bottom. In rear of this funnel or embrasure is placed the spade, the pick being thrust into the ground. The spade is pierced with a circular hole through which to fire, and, in fact, it plays on a small scale the part which the large iron-plated shields are intended to play at Gibraltar, Portsmouth and elsewhere.

The *Engineer* refers in the same article to the spade-hayonet of Lieut. Rice, U. S. A., which was submitted to and approved by the military board that assembled a few months ago at St. Louis, Mo., and of which we also give an illustration in Fig. 5. Capt. Harrison's tool is thought by the *Engineer* too cumbersome to be carried by troops, and that Lieut. Rice's bayonet is not equal to work on hard ground. We think the latter objection more pertinent to Capt. Harrison's, which must be very liable to give out at the joint if subjected to hard usage.

## Silver in Placer County.

We were shown this week some fine specimens of wire and horn silver from the Elizabeth lode worked by the Bellevue Company, near Auburn, California. The mines in this section are looking up, and recent developments show that there is yet much to be expected from there. In one of the veins of the Elizabeth is a stratum containing native silver, the next gold, and a third blue sulphurets of silver with galena and a small percentage of gold. The fact of horn and wire silver being found in this state, is something unusual, and will be looked to with interest. The Bellevue Company have some rich mines in Placer County, the workings of some of which we propose shortly to illustrate.

THIRTY-NINE American vessels were wrecked in September.

## About Patent Laws.

While the United States can boast of having the most liberal laws, with reference to patents in the world, England, on the other hand, must be credited with imposing the heaviest taxation, and the most burdensome regulations upon inventors, and this in the face of the rapid strides which the United States has made during

now amount to \$850 for a fourteen years' patent, to a more moderate and reasonable sum, and to apply the proceeds for the same purpose that it is used in the United States.

When once England shall have accomplished this reform, all of her colonies will undoubtedly follow suit, so that thereafter the inventor who shall produce a valuable invention will be able to secure himself,

It is seldom that foreign inventors take out British patents under the present system, consequently the number of patents is not so great as with us. Englishmen are compelled to pay higher prices for the patents which they purchase from the fact that they do not have a large number to choose from as is the case in the United States.

British patents, consisting of two immense parchments, and the Great Seal of the Crown, composed of some two pounds of ordinary yellow beeswax, on which our inventors pay \$5 expressage, is an amusing affair to Americans, who do not care to be loaded down with such extraordinary documents and ornamental (?) appendages. Compared with our American patent of letter sheet size, it is a monstrosity.

The blue pamphlets which contain printed copies of English specifications, and which are furnished at a six-pence each, including postage, is a more convenient and useful document.

## SIGNS OF RAIN.

There are many signs of early and free supplies of rain. In the mountains and mining districts of Nevada the streams are reported rising in consequence of the diminution of evaporation. There have been in some districts considerable falls of snow, as well as on the plains, and showers in Santa Barbara have been reported, all of which are unusual at this early period of the autumn, and augur an early supply of water now so sorely needed for mining purposes. For agricultural needs early rains are not indispensable, but heavy rains preparatory to plowing, a month later, will be welcome. The great want of rain now is for mining uses.

Many important quartz mines are now idle for want of water. It is estimated that a free supply of that indispensable element at this time would add near a million dollars a month to our present yield of bullion.

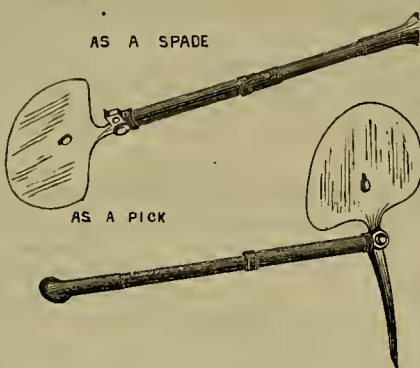
The nights of late in the counties to the north and contiguous to San Francisco Bay have been unusually cold, ice appearing for the first time last week in many places. Severe frosts have prevailed in some parts, which, according to the *Santa Rosa Democrat*, has damaged to some extent the corn and grape crops in Green Valley. Farmers in that neighborhood have been topping the stalks of corn, hoping by that means to hasten maturity before another visit of Frosty Jack.

On Monday October 9th, quite a heavy frost fell in the vicinity of Crow's ranch, on the Stanislaus river. The vines and leaves throughout the neighborhood were killed.

LOSS OF GRAIN AT CHICAGO.—The loss of grain at the Chicago fire was 1,600,000 bushels out of 6,600,000 bushels in store there. The fire will not interfere materially with the regular grain business of that city.

FIG 1

AS A SPADE



AS A PICK

FIG 4

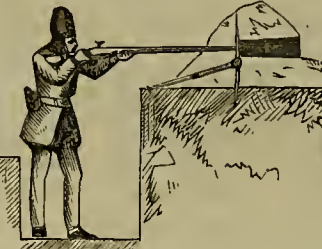


FIG 5

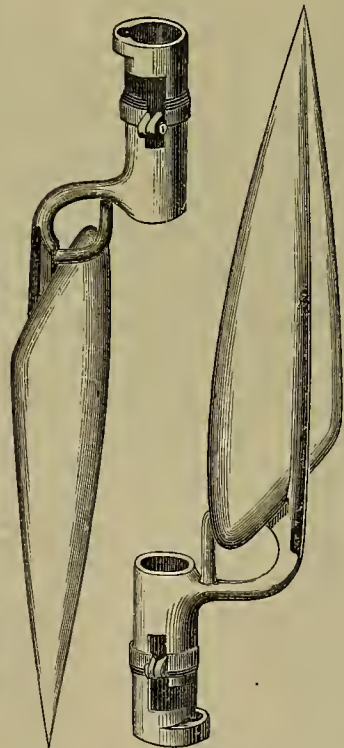


FIG 2

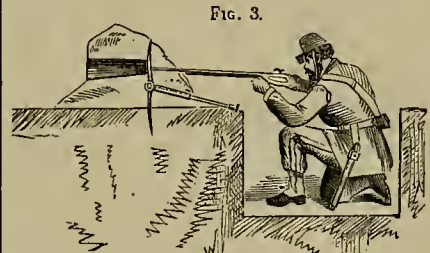


FIG. 3.

the past 50 years; a fact which can mainly be attributed to the facility with which patents for inventions are granted, and the nominal fees required of inventors. In England the Patent Office is used as a means of increasing the Government revenue, while in the United States the fees and receipts of the office are only used to sustain the Patent Office Department.

The English system is unjust to inventors and damaging to the interests of that country, and we are glad to note that some of her influential citizens are beginning to see the folly of the system, and are agitating a reform. They propose to copy after the United States law. They propose to reduce the present enormous fees which

at a reasonable expense, in all of the principal countries in the world.

The present exorbitant fees in England, amount to nothing short of a prohibition to ninety-nine out of every one hundred inventors. It not only discourages home inventors, but bars out foreign inventions and improvements. The lowest fees recommended by the reformers, it is more than likely, would produce a greater revenue to the British Government, than they derive from the present oppressive taxation, even should only one-fourth of the American inventors extend their applications to that country. We believe that a much larger proportion would eventually seek patents in England.



## MECHANICAL PROGRESS.

### Two Pounds of Coal per Horse Power.

It is said, according to the *Technologist*, that a firm in London is now constructing the most economical steam engines in the world. This firm guarantees a consumption of less than two pounds of coal per horse-power, per hour; and claims that in some cases their improved engines have, in actual practice, brought the figure as low as one pound per hour.

To realize the importance of this fact—if it is a fact—it should be borne in mind that ordinary steam engines generally require about 10 pounds of coal per horse-power per hour, when the boiler admits of the evaporation of only six pounds of water for each pound of coal consumed.

Cornish boilers, which are generally considered the most economical in use, ordinarily consume about six pounds of coal per hour, per horse-power; although in extraordinary cases they have been known to reduce this amount to three, and even two and one-half pounds. With the best coal, and careful firing they usually evaporate about 12 pounds of water for each pound of coal consumed; while the theoretic value of a pound of coal calls for the evaporation of only 14 pounds of water.

The great secret of the economy of the Cornish boiler is its proportionately large dimensions, with extensive heating surface; well arranged grate and furnace; heating of the feed-water by the escaping steam; high pressure in connection with proper cut-off arrangements; careful protection against radiation, and intelligent and faithful engineers and firemen. So much is often lost by injudicious firing, that a moderately good boiler and engine loses all claim to anything like reasonable economy.

**DURABILITY OF STEEL RAILS.**—On the London and Northwestern railway in England, there is, near London, a narrow throat in the line, from which converges the whole system of rails employed in the London termini of this great railway. Here all passengers, goods and coal traffic have to pass; here too, the making up of trains and shifting of carriages is continually going on. Mr. Henry Bessemer says: At this particular spot two steel rails were fixed on May 2d, 1862, on one side of this line, and two new iron rails were on the same day placed precisely opposite to them, so that no engine or carriage could pass over the iron rails without passing over the steel ones also. When the iron rails became too much worn to be any longer safe for the passage of trains they were turned the other way upwards, and when the second side of the iron rail was worn as far as the safety of the traffic would allow, the worn out rail was replaced by a new iron one—the same process being repeated as often as was found necessary. Thus we find, at the date of the last report, March 1st, 1865, that 7 rails had been entirely worn out on both faces. Since then another rail has been worn out up to July. The endurance, under this severe test, of steel rails, over iron was as one to 16. The testimony is conclusive and irrefutable. This crucial experiment is cited by various writers, and is well known. When finally the steel rails were removed, they were found to be worn down to a thin blade, but preserved their form and tenacity uncrushed to the last!

**A PRACTICAL ENGINEER'S EXPERIENCE WITH STEAM.**—The following incident communicated to the *Scientific American*, by S. J. Dieter, of Saginaw City, should be read and kept in mind by every engineer. It furnishes the fullest proof of the rapid production of steam in a boiler, where the pressure is suddenly removed in starting, after the engine has been for some minutes at rest:—

I am an engineer of some experience, and I find if my boilers are tight, and I shut down my engine for a short time, no water going into the boilers, so that everything is at rest in the boilers, when I start my engine, the steam will invariably rise

in the boilers, so as to show more pressure on the pressure gauge.

I remember well on one occasion, when I was engineer on the tugboat H. P. Clinton, on the Saginaw river in 1862, we were laying out on Saginaw bay, waiting for some vessels we were expecting; my boiler was very tight, and I had pumped it up to the fourth try cock; we lay about twenty-five minutes with sixty pounds steam, when we sighted two vessels, and we started, and the engine did not make more than ten or twelve turns before the steam showed eighty pounds on the gauge; and I dropped the damper, and we did not get 100 rods when the steam had got to ninety pounds, and the safety valve blowing off vigorously.

My remedy is, when I stop my engines, to always have feed water entering the boilers, or the steam blowing off slightly. If you think this worth notice, it may save some valuable lives.

**IRON SHUTTERS.**—The Insurance Monitor questions the wisdom of iron shutters on the fronts of buildings, where the nearest exposure is across a street of fair width. The journal thinks that uncovered windows, with the police continually patrolling, would be a better security against fire than iron shutters, as the police or firemen could then have easy and prompt access to extinguish the same. Of course it is desirable to have iron shutters and doors to close all openings where exposures endangers a building, but we could name instances, not a few, where iron shutters and doors have proved the destruction of a building instead of its salvation. The above suggestions are of especial interest in view of the difficulties encountered at the late fire, which resulted in the destruction of the Harpending block, in this city.

### Pneumatic Bells.

Efforts have been made to supersede by electricity the use of the wire connection with the common door bells. Electrical bells have been introduced into large buildings with some success. With this description of bell no movable wire is necessary, and the cranks are done away with. Such arrangements also facilitate the use of the indicator to show from which room the sound comes, but the objection to all such electrical apparatus has been that they require a battery which requires attention. The common bell has therefore been found superior in private houses, although the electrical bell has many advantages for public buildings.

A German invention, lately introduced into England, provides a pneumatic bell which has many advantages over the common style, and is both simple and ingenious. A leaden pipe, about as thick as a lead pencil, is used in place of wire; to one end of this pipe a piece of ornamental rubber tubing is attached, and at the end of this an india rubber ball. When the ball is compressed by the hand an air wave is sent through the tubing to the bell. At the bell end, this pipe terminates in small spear-shaped bellows of rubber, from which rises a rack which engages a toothed wheel, which moves a hammer and thus rings the bell.

Large pneumatic bells constructed on this principle, have been applied to three of the largest vessels in the French navy, in communication from the engine room to the deck. They have also been introduced into some French merchant steamers and English men-of-war. The common bell wire stretches and the cranks get out of order, the electrical bell is complex and requires attention, but the pneumatic bell would seem to obviate these difficulties.

A modification of this invention is highly useful for offices, dwellings, etc., and consists of an arrangement for opening a door by a person sitting at a distance from it or in another room. The gentle pressure of the air in a pipe is made to release a detent, which forces a spring and the door springs open.

**PAPER FROM HOP VINES.**—In the region of Marseilles, France, a beautiful white paper is made from hop vines, and its strength in connection with its pliable texture, renders it a favorite with those who have tested its merits by actual use. The hop vine is well known as a very strong, pliable fibre, and there is no question but that it would make an excellent paper. Its scarcity, however, will not allow of its extensive use for such a purpose.

## SCIENTIFIC PROGRESS.

### Agassiz Coming to San Francisco—Scientific Researches.

Prof. Agassiz is about setting out from Boston on a deep sea exploration. His observations will be made between the Atlantic Coast and the deep ocean to the eastward. To accomplish this he will proceed on board a U. S. coast survey steamer, in a zig-zag course, as far as Cape Horn. He carries dredging apparatus capable of working at a depth of about 3½ miles. After doubling Cape Horn he will proceed up the western coast of the continent in the same manner as far as this port, dredging and sounding all the way. His observations will undoubtedly add much to our present knowledge of the ocean's bottom, and of the conditions of animal life at great depths beneath the ocean's surface.

In so long a trip, through such varied climates, and during calls at the many ports at which a steamer must necessarily stop, on such a voyage, the Professor, with his natural habit of observation, cannot fail to collect much information, aside from the specific object of his mission. The arrival of this distinguished scientist in San Francisco, will be an event of no ordinary importance, the more especially as he will come freighted with so much that will be new and interesting in the line of progressive science.

**TREMULO FOR REED ORGANS.**—A patent was recently issued at Washington for the application of a rotary prism to organs or melodeons in such way that the sound waves can strike it at different angles, to be reflected in different directions, and thus produce the desired tremulous effect. If preferred, a quadrangular or rhombic prism may be used. It is made of thin wood or other light material, preferably hollow. It is connected with the shaft of the wind wheel, which, when revolved, will impart rotary motion to the prism. The wind wheel is arranged and moved in the ordinary or other suitable manner. When the sound waves strike the revolving prism at different angles, they are reflected with greater or less force, according to the difference of angles, on the same principle as waves of light are reflected, and thus produce the desired tremulous effect. The prism is to be placed in a position where the sound waves can strike it directly after they leave the reeds.

**A NEW TEST PAPER.**—Professor Böttger, announces the discovery of a new re-agent, which, he asserts, is highly sensitive to the alkalies. It is a coloring extract of the *coleus verschoffelti*, and is produced by digestion, for 24 hours, in pure alcohol, to which a few drops of sulphuric acid have been added. The hue is a brilliant red, which turns green on contact with any alkali. It is not affected by carbonic acid, and will detect the slightest trace of ammonia in illuminating gas, if moistened and placed against an open jet. The presence of the minutest quantity of a carbonate of any of the alkalies is detected by it.

**THE NEBULAR HYPOTHESIS** has received new confirmation from the discoveries made by the spectroscope. Prof. Kirkwood states, in the *American Journal of Science* "that it has demonstrated the present existence of immense nebulous masses such as that from which Laplace supposed the solar system to have been derived." It has shown, moreover, a progressive change in their physical structure, in accordance with the views of the same astronomer. In short, the evidence afforded by spectrum analysis in favor of the nebular hypothesis is cumulative; and of itself sufficient to give this celebrated theory a high degree of probability.

**EFFECT OF CASTOR OIL ON LIGHT.**—O. Popp has observed that castor oil turns polarized light to the right, and differs in this respect from all other fats. He also found all the commercial castor oil to contain nitrogen, and finds in these facts supports of his previously expressed opinion, that the purgative properties of this oil are due to a nitrogenated body, probably an alkaloid.—*Archiv d. Pharm.*

### A New Source of Electricity.

James St. Clair, communicates to the *London Chemical News* the fact that he has recently discovered a new source of electricity. He relates that in the course of some experiments relative to sulphur and phosphorus, his attention was drawn to their mutual action while in alkaline solutions, and it occurred to him that probably from this there might be derived an electric current.

In order to ascertain this, as well as to determine—should there prove to be such—whether it was constant or not, there was prepared a cell containing a solution of caustic potash in which phosphorus and sulphur, both in sticks, were placed. Within half an hour the phosphorus was reduced to an oily mass perfectly mobile, occupying the lower part of the cell; the sulphur was not at first affected. The temperature at first rose considerably—about 20°—but this soon passed off, and the solution returned to the temperature of the surrounding medium, varying from 56° to 60° F. During the first six days there was a constant development in small quantity of phosphuretted hydrogen in the spontaneously inflammable form, but after that time, although phosphuretted hydrogen still continued to be evolved, it no longer ignited spontaneously, this being probably due to the simultaneous development of sulphuretted hydrogen, which began to be exhaled in appreciable quantity about this time. At first the sulphur was little affected, but at the end of ten days it was found that at the point of junction of the phosphorus therewith there had occurred considerable loss of substance.

In the solution there were produced sulphite and phosphite, hyposulphite and hypophosphite, and slight traces of sulphate and phosphate of potassium. At the end of three months the conditions were still much the same.

Subsequent experiments showed that the electro-motive force, as registered by the electrometer, was as 162 to 120, when compared with a Daniell's battery—showing a difference in favor of the sulphur and phosphorus of 42°. Mr. St. Clair is engaged in further observations on this subject, the result of which will be made known at a future time.

**TO MAKE A MALARIOUS DISTRICT HEALTHFUL—FLOWERS AS A DISINFECTANT.**—Prof. Mantegazza has discovered that ozone is developed by certain odorous flowers. A writer in *Nature* states that most of the strong-smelling vegetable essences, such as mint, cloves, lavender, lemon, cherry and laurel, develop a very large quantity of ozone when in contact with atmospheric oxygen in light. Flowers destitute of perfume do not develop it, and generally the amount of ozone seems to be in proportion to the strength of the perfume emanated. Professor Mantegazza recommends that in marshy districts and in places infested with noxious exhalations, strong-smelling flowers should be planted around the houses, in order that the ozone emitted from them may exert its powerful oxidizing influence. So pleasant a plan for making a malarious district salubrious, only requires to be known to be put in practice.

**NEUTRAL SOLUBLE GLASS AS A WASHING MATERIAL FOR WOOLEN GOODS.** is said to be the best substance that can be applied to that purpose. One part of the soluble glass is added to 40 parts of water at 45° R. In this solution the wool is immersed and worked about for a short time with the hand, and then rinsed in cold water. The results are said to be surprising, the wool emerging clean, white, soft and without odor.

**VEGETABLE CARBOLIC ACID.**—It is said that a plant called *Andromeda Leschenaultii*, growing in the Neilgherry hills, in India, has been found to yield carboic acid. Mr. Broughton, the Government medical officer for the district, reports that it is far superior in purity to the ordinary product of coal tar, being less deliquescent and free from any admixture of noxious concomitants. As its cost is far above that of the mineral product, and as the latter can be chemically purified, the discovery has no economical or commercial value; but it is interesting as a botanical and chemical fact.

**FOSSILIFEROUS GRANITE.**—M. Reinsch, inspector of mines at Gotha, states that he has recognized organic remains, both animal and vegetable, in certain granite rocks heretofore reputed to be of igneous or eruptive origin.



## CORRESPONDENCE.

### THE WESTERN SLOPE OF WHITE PINE MOUNTAINS.

BY OUR OWN TRAVELER.

Eds. Press:—Thinking that your readers would like to hear of what is being done on the western slope of the White Pine Mountains, I left Shermantown one morning to make a flying trip to the district, which is being prospected with vigor by the miners. The first visit I paid was to

#### The Bushnell Mins.

about three miles from the Monte Cristo Mill, which was located May 6th, 1869, by Jos. Fulton. The elevation is about 10,000 feet. A cut has been run into the hill about 15 feet long, and 8 feet wide. About 50 tons of ore are on the dump, which will pay about \$75 per ton. The ore will have to be roasted to secure a good return; it contains chloride of silver and galena. The formation is hard limestone. Considerable money has been spent in making the trail up to this mine, which will be more fully prospected when the ore can be treated at the mill.

#### The Parker Ledge.

owned by Jos. Fulton, was located August 2d, 1869—1,000 feet. The shaft is 12 feet deep. The lode dips to the east, and crops out along the hillside. It is about 6 feet wide at the bottom of the shaft. There are about 25 tons of ore on the dump, assaying \$100 per ton. This mine can be very easily worked.

#### The Mountain Lion.

a short distance from the Parker, is a lode 2½ feet wide, running into the hill. It can be traced some distance on the surface. A tunnel 33 feet long, has been run, showing up a good quality of smelting ore. It is owned by Johnson & Co., of Oakland.

#### Trench Mins.

owned by Jos. Trench, of San Francisco, is 2½ miles south of the Monte Cristo mill. T. Robinson is superintendent, and V. Bentsch, foreman. It was located in December, 1868, by Capt. Lane. The main tunnel is in 128 feet, connecting with a shaft 48 feet deep, so as to give air to the mine. There are 35 tons of ore on the dump, waiting for shipment. It requires roasting, and yields largely. The average width of the lode is 3½ feet, growing sometimes small and then widening out into large chambers. Eight men are employed at present.

#### The Caroline.

on Mt. Ophir is a fine vein of rich ore, and pulp assays run as high as \$800 per ton. A tunnel has been run in on the vein 90 feet. The ore will be worked at the new mill on this side. There are 14 men at work on the mine, which is owned by L. Ellis.

#### The Lone and Mt. Ophir Mines.

are located a little south of the Trench. The shafts sunk on both mines show a good quality of ore, and assays run all the way from \$50 to \$700 per ton. Jos. Fulton and others are the owners.

#### The Monte Cristo Mill.

about 15 miles from Hamilton, on the western slope, was built within the past year, and has 20 stamps, double cams. There is in connection with this mill a Stetefeldt furnace, which was built in 1870, and after being tested, the old five-stamp mill was pulled down, and this fine new one took its place. There is an 80-horse power engine—16-foot fly-wheels, and two fine large tubular boilers 16 feet long, each containing 54 tubes. The boilers were manufactured at Newburgh, N. Y. The battery is from the foundry of Booth & Co., San Francisco. There is a screw or conveyor on each side of the battery, to take the pulp on to, and to the top of, the furnace, which is 25 feet high. The stamps weigh 800 pounds each, and dropping 90 times per minute, crush 30 tons in 24 hours. They use one of the Wagner's Patent Crushers, made at Derby, Conn. There are also four of Booth's Patent Pans—wooden sides; two fountain pans; three settlers, and two agitators. The pans were all made in San Francisco. There are three stacks, the main one being 60 feet

high. The Stetefeldt furnace is of the largest size, and cost over \$20,000. Steam jets and all the late improvements are used. The battery blocks and timber came from Truckee, Cal. The roof of the mill is covered with tin, to prevent accidents from fire; an idea which might be carried out advantageously by other mill owners. A stone retort-room, 16x20 feet, is a short distance below the mill. This company has the finest water privilege on this side of the mountains. Mr. H. N. Day, of New Haven, Conn., is president; Wm. Robinson, superintendent; Thos. McMasters, amalgamator. There is a very fine garden near the mill, where they raise vegetables for the mill hands.

A large number of mines are located on this side of the mountains. The old five-stamp mill was built in 1866, and when the excitement broke out in this country it crushed the first rock that was ever milled in the District—ore from the Hidden Treasure mine. Among the mines that furnish this mill with ore are the Trench, Parker, Bushnell, Bald Eagle, Philadelphia, Gloucester, (owned by Woodruff & Ennor), Enterprise, Zavalla, Vanderhilt Nos. 1 and 2, and Uncle Sam. A few of the mines in the cañon, now being worked energetically, are the Morrill & Leathers, Crown Point, and Mammoth, with a number of others that will yield large quantities of ore. A shaft 45 feet deep has been sunk in

#### The Enterprise.

The lode is from three to six feet wide, and the ore averages \$50 in silver, and 48 per cent. of lead. Another good location is

#### The Zavalla.

the ore of which assays from \$50 to \$130 per ton. It is stetefeldtite, argentiferous galena and oxide of lead. The Queen City has a large quantity of ore on hand ready for milling. The ore in

#### The Murray No. 2.

consists of argentiferous galena and chloride of lead. It is of a good quality, averaging \$30 to \$150 per ton; but requires roasting. The mine looks very well, and a large cut has been made, showing a good vein of ore.

#### The Morrill & Leathers.

has a shaft sunk 10 feet deep, showing ledge matter 5½ feet wide. It runs parallel with the Murray No. 2, and the rock is the same description.

#### The Bald Eagle.

has about 100 tons of ore on the dump. A shaft 40 feet deep has been sunk, showing a ledge 3½ feet wide. The Philadelphia is located east of the Bald Eagle.

#### The Badger Stats

shows a large quantity of good roasting ore in sight.

#### The Gloucester.

belonging to Woodruff & Ennor, has about 40 tons of ore on the dump, which will work between \$50 and \$100 per ton. The ledge is six feet wide and the shaft 12 feet deep. This is a good mine and well worth a visit. It is located about 1½ miles northeast of the Monte Cristo mill. J. H. Halderson is superintendent.

#### The Tucson City Lode.

is about 3 feet wide, and the shaft is 32 feet deep. The Enterprise No. 2, Murray No. 2, and Zavalla, are owned by A. J. Brown. They are all good locations that show rich ore. Plenty of fine timber abounds on this side of the mountains. W. H. M.

### THE SAN DIMAS MINING DISTRICT.

Eds. Press.—The district of San Dimas is situated in the State of Durango, about 2½ miles from the dividing line of Sinaloa, and on a tributary of the Piastla River, some 10 miles from its junction with that river. The town contains a fine church, two large haciendas de beneficio (mills for reducing silver ores, so to speak), some 10 to 12 stores of a very respectable size and stock of goods, and about 1,200 to 1,500 people, in and around it. It is the political and legal center; also, having the jefe (chief) judges, and records. The other numerous districts within a radius of 20 miles or so are to a great extent dependent upon it. They are (the principal ones) to the north Huahuapa (wha-whap-par) to the south and southeast Guariemey (whar-is-semey), Tayoltita, and LaPnera, and to the west San Vicente,—five in all. There are others, at a greater distance, but not tributaries of this, as Gavilanes (a center in itself), Ventanas, Buena Vista, and Candelaro, while there are more which contain

mines, but are not well known yet. It is, however, of San Dimas, and its five satellites that we propose to speak.

#### The Principal Mines of San Dimas.

are Nuestra Señora de Candelaria (said to be the seventh best mine in the Republic,) Bolaños, Cinco Señores, Santa Veneranda, Arana, San Luis, Carmen, Dolores, Remedios, San Dimas, San Juan Nepomocino, and some others which are less known. Those of the above which are working in force are the Bolaños, and San Luis. They are two claims on the same vein. The vein is nearly vertical in basaltic porphyritic trap rock. It is worked down on one chimney of ore nearly 500 feet deep, 385 feet in length on the vein, (horizontal projection), and an average width of 10 feet. The chimney pitches to the north at about 58°. The ore is silver sulphide imbedded in white quartz with iron in different forms now and then, as pyrites, and the black oxide of manganese, and occasionally copper pyrites. Gold is visible to the eye at every blast, and the bullion is from .050 to .150 fine. A new tunnel is being driven to cut the vein at 730 feet, which will be only 200 feet long. It is an utter impossibility to state what any mine, in this vicinity has produced, as there are no records to show the truth. But my opinion is that this mine has produced over \$1,000,000, averaging \$140 per ton. It is only well prospected however, and with vigorous, and well directed blows will produce much more. Mill facilities only are needed to make it a very valuable mine.

San Luis is further to the north, and has produced about \$2,000,000. The several other claims of this lode have produced, but nothing positive can be stated as to the amounts.

Cinco Señores has a greater reputation than any mine here. But as it is flooded, and we can only speak of what we see and feel, we must defer an opinion until work has solved the question.

#### The Candelaria.

This justly famous mine is said to have been discovered in 1783. In 1820 the Revolution or War of Independence, drove away the owner and the mine "flooded." I am, however, justified in repeating, and believing, that \$56,000,000 have been extracted from it. The "strike" was taken from (chiefly) a chimney of ore now worked 943 feet deep, 200 feet long, 15 feet wide—283,000 tons at \$200 per ton, equalling \$56,600,000. Now the government records show that he paid \$11,000,000, as the King's one-fifth of \$55,000,000, so that the two statements are approximately correct. Some say as high as \$80,000,000. An American Co. own and are working Candelaria, Dolores, Remedios, and Cheneri; Cinco Señores, Veneranda, Arana and San Rafael; also Guzman, Trinidad, Bolaños and Carman, or more properly speaking, there are only three mines, Bolaños, Cinco Señores and Candelaria.

Mexican companies work the remainder. The American company is driving three large tunnels (one for each mine), which will drain them to the bottom. They have been engaged for seven years in this work, and the end is not yet. At the same time they are extracting ore from the levels above water.

As all are so familiar with the rude Mexican methods of reducing silver ores, we will not harrow the souls of our readers with a repetition of their "brutal application of brute force."

Water power is abundant, and fuel costs from \$5 to 5½ per cord. The roads are merely trails up brooks and over steep mountains. Wagons cannot be used at all. The guarantees of public safety are very limited indeed, and one must be well armed and ready to repel robbers at any time. Revolutions are now become chronic, so that one is in about as insecure position as he could desire.

This is due to the Indian blood. They make a play and a farce of Government. Indeed a structure built upon such a foundation as Mexico is, where both sexes have no confidence in the other, none in religion, or the sanctity of home, and are led around by a conniving clergy, well up in the vices, such a structure cannot stand the first heavy rain. The only hope for Mexico is in the railroad, of which the telegraph, now in operation in the Republic, is the sure fore-runner. The barometer of a country is the condition of its women.

VALVERDE.

San Dimas, Durango, Aug. 18, 1871.  
(To be continued.)

### Bull Run District, Nevada.

Eds. Press:—Since I wrote you last, several mines in this district have been bonded at good figures and others have been mortgaged to raise money, to prepare for work this winter. The principal mines are looking well and those being worked are improving as the depth is increased.

#### The Tiger Mine

is looking better than ever, and a large quantity of \$500 ore is being taken from the main shaft.

#### The Blue Jacket

is in a fine condition for the extraction of ore. The tunnel is 200 feet long, 130 feet of which is in ledge matter. The pay streak is about 22 feet wide. This is probably one of the richest mines in Northern Nevada.

#### The Johnson Ledge

is looking well, and there is plenty of gold in sight. The North Star has fine prospects ahead as have several other companies. The great difficulty with us is the necessity for the transportation of ore to Mountain City for reduction. I understand that the arastra, built by Mr. Berett, is nearly complete, and will soon be put in operation.

#### Placer Diggings

have been found on the east side of the mountain in what is known as the Bull Run Basin. Three or four men have been prospecting there all this summer, and one of them, Mr. Judd, tells me that they are now taking out from \$4 to \$6 per day to the land; but lack of water retards their operations. The gold is coarse and heavy, and the bed rock deep. The miners intend putting in a ditch next summer, so as to use hydraulics, by which means they expect to realize an ounce a day. One piece of gold was found weighing \$13, and another \$7. Several have been found valued from \$1 to \$5 each. It is thought that extensive diggings may yet be found in this vicinity, as scarcely a pan of dirt can be washed without finding from one to twenty ceters.

CHLORIDE.

Bull Run, Oct. 9th, 1871.

How THE HUMBAG PAYS.—A certain Rev. advertises to send free, out of pure kindness, a valuable receipt for the cure of consumption to all who forward to his address a postage stamp. This looks fair, but the readers of a thousand journals wonder how he can afford to pay, year after year, for so many advertisements. The mystery is unravelled when a cunning circular is returned with the receipt, saying the only safety in procuring the wonderful South American remedy is by sending \$3.50 to the "grateful" scoundrel "snatched from the borders of the grave" who employs the title of Rev. to steal more successfully from "gnats" who are silly enough to notice advertisements that promise to give "something for nothing." This is our answer to those who wish to make our advertising columns accessory to their despicable schemes.

CIDER MAKING.—Quite a large number of residents of Nevada are engaged in cider making this season. As yet we have never seen any California cider that will keep any length of time, and from the amount of cider manufactured this season we infer that vinegar will be very abundant in this locality in the future. Many experiments have been made to keep cider for winter use, as is done in the East. In one case an experienced cider manufacturer sent to England and procured a cider mill of the same kind as was used by his father who manufactured cider for London. He set his mill in operation, put his apples through the same process, and produced a beverage, but it wasn't cider. A gentleman who tried it, said whisky was mild compared with that cider. California cider is excellent when new, but it won't keep. We have never known of an instance where it could be used after a month or two. Any one who can find a process by which cider can be kept for a year as in the East, will render an important service to those engaged in its manufacture.—Nevada Transcript.

SALMON, from the Sacramento river, are now being shipped East in large numbers, where the luxury is appreciated. Californians scarcely know the value of such common delicacies.



# MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

ORE.—Alpine Chronicle, Oct. 7th: Another body of good ore has been struck in the Schenectady.

MONITOR MINER, Oct. 7th: Fine ore from the Exchequer mine was shown us this week with assurance that there was now a large deposit in sight, sufficient to justify the management in starting up the mill soon.

THE ore house of the Monitor & N. W. Co. is being improved. It will have self-discharging and loading facilities, which will reduce the cost of hauling ore to the mill.

THE Old Billy Rodgers mine in Hope Valley is working again with quite a large force.

LOOMING UP.—The Schenectady quartz mill at the lower end of Main street is fast approaching completion.

### BUTTE COUNTY.

THE SPRING VALLEY MINING DITCH.—Chico Enterprise, Oct. 14th: The Co. of Cherokee Flat have sold to an English Co. their mines and ditch property for \$1,200,000.

OROVILLE Record, Oct. 14th: Rich gold bearing quartz has been struck near Little Kimschw. Also a silver ledge of superior richness.

### CALAVERAS COUNTY.

WHAT CHEER.—Mok. Hill Chronicle, 14th: The dump, sluice-hoxes, etc., necessary for the commencement of operations are completed. Everything is in readiness for taking out gravel—"pay dirt," at that—as soon as water can be had.

GWYN MINE.—The main shaft has reached the depth of 520 feet. Work will be commenced upon the 500-foot level as soon as the "sump" is sunk 10 feet deeper. The lead is looking first-rate in the bottom of the shaft—better than at any other point. Only 26 stamps are running at present on account of the scarcity of water. When the whole battery is put in motion the mine will pay \$1,000 per day.

PETTICOAT.—Rapid progress is being made in sinking the shaft. The lead is very much broken up, the space between the walls being filled with slate "gouge" and detached pieces of quartz. The shaft is to be put down 300 feet.

### CONTRA COSTA COUNTY.

THE MARSH GRANT COAL MINE.—Contra Costa Gazette, Oct. 14th: A vein of superior coal, 7 feet thick has been struck in the Brentwood mine and the work of constructing a railroad from the mine to the river will be shortly commenced.

### EL DORADO COUNTY.

SPECIMENS.—Calaveras Chronicle, Oct. 14th: Some beautiful specimens of gold-bearing quartz from the mine of Johnson & Co. at Greenwood are on exhibition here. A houlder weighing 100 lbs yielded 300 oz. of gold.

### LOS ANGELES COUNTY.

BULLION.—Los Angeles News, Oct. 5th: 586 bars, weighing 48,485 lbs were received from the Union works, Cerro Gordo, on the 29th Sept. On the 30th, 311 bars from the O. L. S. L. Co.'s works weighing 27,044 lbs were received. On Oct. 3rd 244 bars, 20,257 lbs, were received from the Union works; and on the 4th, 48 bars, weighing 3,954 lbs, were received from same works.

### MARIPOSA COUNTY.

MINING JOTS.—Mariposa Gazette, Oct. 13th: The proprietors of the Ferguson mine and mill will soon add 10 additional stamps to their mill which will make it a 25 stamper. The quartz now being taken out looks fine.... Hambleton of Buckeye, has been taking out some very rich rock. It is of the honeycomb appearance and well sprinkled with gold. A pile of quartz at Hite's mill, was variously estimated to contain from \$50,000 to \$100,000 in gold. About all the water-wheel mills and several of the steam ones in this county are now lying idle for want of water.

### NEVADA COUNTY.

MANHATTAN MINE.—Nevada Gazette, Oct. 9th: In course of 10 days, the Co. will be at work again.

TOWN TALK MINE.—G. V. Union, Oct. 10th: Made a clean up last Saturday, after a month's run with a 5 stamp mill. It gave 279 3/4 oz. of retorted gold, worth \$5,000.

DESTRUCTIVE FIRE AT CANON CREEK.—The great dam belonging to the N. Bloomfield Gravel M. Co. was destroyed by fire yesterday. About three miles of the flume,

hslow the dam, were hurned. A quartz mill located below the dam, was also burned. The fire was accidental.

### PLACER COUNTY.

A GRAVEL MINE.—Auburn Herald, Oct. 14th: E. West is opening a gravel mine of much promise above the Junction House and near the head waters of Rock Creek, some 2 or 3 miles from here. He has run a tunnel into a ridge some 300 ft. in all, and struck an old gravel bed that contains heavy washed gold in paying quantities. Two weeks ago, the drifting of one man in 5 days had yielded about \$100, or \$20 per day, and the paying strata was increasing in depth and width as the work advanced.

### PLUMAS COUNTY.

MOHAWK VALLEY.—Quincy National, Oct. 7th: At the mouth of Jamison Creek several new claims have recently been opened, and the owners appear to be well satisfied with their prospects.

The Eureka Co. have put up a new battery in their steam-mill, and 24 stamps are at work on rock that yields rich returns.

Jackson & Graham at Hardscrabble, cleaned up \$700 last week and expect \$500 more this week.

Mr. Betterton thinks he has discovered a quartz lode that will pay to work. He pounded out \$12.50 with a mortar some days ago.

CHEROKEE.—J. D. Compton's new quartz mill will be in running order within 3 weeks. The main shaft on the ledge is down 160 ft. The ledge averages 4 ft. in width and is good paying rock. H. Gregg, is taking out rock from his mine averaging about \$10 per ton. Mr. G. also has a contract to sink a shaft on the Eureka ledge. If at the depth of 60 ft. the ledge proves to be as good as it is near the surface, the Co. intend to erect a mill. The Co. will work in their upper levels during the winter. Bachelder has run a new tunnel which taps his ledge (the Green Mt.) about 200 ft. below the present working.

SOLD AGAIN.—The property of the Indian Valley Co. has been sold to Applegarth Bros. who intend working it.

### SAN DIEGO COUNTY.

ITEMS.—San Diego Union, Oct. 14th: All the mills except the McMechan, which has stopped temporarily for repairs, are very busy. The mills of Gunn, Reynolds & Co. and DeFrees & Co. are both engaged upon Helvetia ore. Returns from the S. F. Mint show that the mill of Gunn, Reynolds & Co. beat that of DeFrees & Co. on the last crushing of this ore 40 cents per ton.

Mr. Miller, foreman of the Helvetia Co., fell down a shaft 70 ft. deep, on the 29th of Sept. and fractured his skull badly. The wounds he received, will not prove fatal.

The prop's of the Owens lead are hard at work excavating, and expect to strike good paying rock.

### SISKIYOU COUNTY.

QUARTZ MILL.—Yreka Union, Oct. 14th: Elders & Co., of Providence Hill, have their mill in operation. They have taken from their ledge since June, by means of an arastra, about \$7,000. Another quartz mill is being built in the vicinity.

### TUOLUMNE COUNTY.

CITY LOT MINING.—Sonora Democrat, Oct. 14th: Some days since parties commenced prospecting the vacant lot on the corner of Washington and Jackson streets. The prospectors have found good paying dirt; they hauled a quantity and washed it, from which was realized about \$6 per cart load.

## Nevada.

### EUREKA DISTRICT.

STARTED.—Eureka Sentinel, Oct. 12th: Work has been resumed on several old locations on Adams Hill.

GOOD PROSPECT.—An assay of ore from a newly discovered mine near the head of N. W. Cañon, returned \$139.20 in gold, and \$217.08 in silver.

COAL.—J. D. Sullivan is running a tunnel into Pancake Mt. for coal. In a shaft sunk some time ago he found a good prospect, at a depth of 50 ft.

SALE.—The Tip Top mine has been sold for a large figure. The purchasers intend commencing work at an early day.

ANOTHER SALE.—W. H. Davenport has purchased an interest in the "Gray Eagle," "Red Warrior," and "Mary Blane," situated in Jackson Cañon, the average assay of the ore from which is \$100 per ton.

STRIKE ON RUBY HILL.—The new vein recently cut in the tunnel of the Eureka Cons. Co., proves to be one of the finest hodies in the Dist. In the side tunnel the ore is over 10 ft thick, and in the end toward the centre of the hill, some 350 ft. from the ravine, a cross cut in vein matter

shows the width to be 12 ft. and not yet through. The whole face at this latter point is in ore which will assay \$200 in silver for each ton, no gold, and an average of 40 per cent.

STRIKE.—Judge Gray has made a lucky strike about 800 ft. from the Gen. Lee mine, and named it the '49.

GOODWIN'S CANON.—Parties prospecting, inform us that the locations are turning out splendidly. The Garvey and others, after a few days' work, showed some horn and native silver, assaying into the thousands.

ACCIDENT.—A miner named Jackson, employed in the Buckeye was yesterday severely injured by a falling houlder, which struck him on the head, lacerating the scalp several inches.

EUREKA.—Cor. Reese River Reveille, Oct. 13th: The English Co., which lately bought the Richmond Co.'s mine and furnace works for \$250,000, have commenced laying the foundation for two "Leviathan smelters," the capacity of which, will be 15 tons of hulsion per day. The Co. intend to have them in working order inside of 60 days. Another heavy mining sale is on the tapis, consisting of the Raline, Belmont, and Peoria mines. A rich strike was made yesterday in the Jenksville mine, up N. Y. Cañon near the Dunderberg lode. The ore is of the smelting style and assays upwards of \$200 per ton. At a depth of a few feet the defined ledge is 2 1/2 ft. wide containing 60 per cent. lead. Negotiations are pending for the sale of the Bullwhacker, Dunderburg, El Dorado, Valentine, Lord Byron and Tecoma mines to an English Co. The Phenix furnace is turning out regularly 3 1/2 tons of high grade bullion per day. The Richmond is clearing \$1,000 daily, and the Eureka Cons. steadily run 450 to 500 tons per month of bullion that will average \$325 per ton.

### ELY DISTRICT.

BULLION SHIPPED.—Ely Record, Oct. 7th: W. F. & Co. shipped, since Oct. 5th, (one day's shipment) 27 bars, valued at \$38,228.92, and (same paper Oct. 12th,) since Oct. 8th, 36 bars, valued at \$70,232.96.

CRESCENT MILL.—The mill having completed its contracts for working up small lots of ore, has stopped temporarily. It is believed that the Alameda Co. is about purchasing the property. The Crescent will not start up again until a full supply of water is secured.

### HUMBOLDT.

BULLION SHIPMENT.—Unionville Silver State, Oct. 14th: Amount shipped from the Arizona mine, since our last issue, was \$5,600.

LOOKING WELL.—The Alpha mine, near Rye Patch, is showing a well defined vein of rich ore.

WHEELER SHAFT.—The shaft, being sunk for the purpose of cutting the Arizona ledge, is down over 100 ft. Indications are favorable.

WILL REBUILD.—Smith & Harley will rebuild the Rye Patch mill, on the site of the one destroyed by fire a few weeks ago. The new mill will be larger than the old one, and will be ready for business by the first of Jan.

SOLD.—G. Carmany has sold his interest in the Butte mine, near Rye Patch.

THE Butte M. Co. expects to have their new mill in operation before the first of Jan. It will have a capacity for 20 stamps.

### REESSE RIVER.

BULLION.—Austin Reveille, Oct. 13th: Manhattan Co. shipped bullion valued at \$11,999.68 last month.

J. A. Paxton & Co. shipped, during the same time, 47 bars, weighing 3,336 lbs., valued at \$25,101.69, of which \$23,129.11 was from—the Transylvania and Arizona at Belmont—and the balance, \$1,972.58, from Montezuma dist. W. F. & Co. shipped during the same month 60 bars, weighing 4,050 lbs, valued at \$33,047.93, nearly all from Belmont.

ISABELLA.—The Manhattan Co. have 5 different parts leased to as many parties, most of whom are taking out ore. The Co. have also let a contract for drifting into the hill on which good progress is being made.

SARATOGA.—Curtis, Story, Roberts and Tucker have had 33 tons of second class ore worked and it returned coin at the rate of \$199.50 cents per ton. They have 13 tons on hand of high grade that will work close to \$1,000 per ton. They are still taking out ore and sinking the incline. A part of the mine is leased to chloriders, who are getting some fair ore.

SAM BRANNAN.—The owners have erected a whim and placed things in good shape. They are down 200 feet and struck the ledge day before yesterday. It looks well though not fairly opened. The last lot of ore from this mine worked \$600 per ton.

METACOM MILL.—This mill is being thoroughly overhauled and greatly improved. The harrels used for amalgamating, have been new lined, machinery overhauled and a new White (revolving) furnace added. This furnace is provided with 4 dust chambers 6 by 12 feet each.

THE Pacific Mining Co. intend to start the mill about the first of next month. They have on hand 200 tons of ore and will run the mill on custom ore and the rock from their own mines.

WELL SUPPLIED.—The Manhattan has been running day and night for a long time past, yet ore has accumulated until there is, at a moderate estimate 280 tons. This is mostly high grade and much of it is from the company's mine on Lander hill.

### WASHOE.

OPHIR.—Virginia Enterprise, Oct. 15th: In a few days the Ophir Co., will have completed the work of putting in all their tanks and pumps, when sinking will be resumed in their main shaft.

SAVAGE.—There is but little ore above the tenth level and not much room for development of any new hodies. They will soon commence sinking their incline for the purpose of opening a new level below. The mine yielded last week 1,018 tons, average assays are \$32.12 per ton; Hale & Norcross yielded 1,191 tons.

THE Suto tunnel was in yesterday, 2,480 feet.

AIR ENGINES.—There is a probability that compressed air engines will be introduced in our mines.

YESTERDAY the head of the steam-drum of the west set of boilers at the south hoisting works of the Yellow Jacket Co., blew out, with loud report startling the whols town. Damage slight, nobody hurt.

CROWN POINT.—Gold Hill News, Oct. 11th: The body of ore at the 1,200 foot level is found by survey to extend 70 feet further north than it did in the level above. The other ore producing levels are looking well. It is supposed that the ore body is widening to the northward. This ore yield for last week was 450 tons, of the estimated value \$10,952.89. The drift south at the 900 foot level is in 125 feet. The west winze to connect the 1,100 foot level with the 1,220 will also be completed shortly; the east winze from the 1,100 is down 35 feet. The ore body at the 1,100 foot level is 280 feet long, extending beyond the south line into the Belcher. The 1,200 foot level continues opening out splendidly, giving excellent assays. The incline from the main shaft is completed to the 1,300 foot level, and the station is being opened for a south drift and new level at that point.

BUSY.—Reno Journal, Oct 14th: The Auburn Mills and Stetefeldt furnace, for the reduction of refractory ores are very busy.

The Auburn Co. received on the 12th instant, two car loads of ore from the De Soto mine, Star City.

### WHITE PINE.

BULLION.—White Pine News, Oct 7th: W. F. & Co. shipped to-day, to London, 1 bar of hulsion weighing 73 pounds, value \$1,298.47. Also one bar from East Sheboygan, to same place, valued at \$451.35.

EAST SHEBOYGAN.—For several weeks the appearance in all the workings has gradually improved, until a vast body of ore for a distance of 200 ft. has been developed. It is the intention of the agent to start a tunnel. The original tunnel is 40 ft. east from the old tunnel, showing ore the entire distance. The ledge shows an average of 16 ft. thick. Ninety feet north is the Exchange shaft, 22 ft. deep, showing a fine body of ore. Two drifts are going ahead; one running east, in a distance of 12 ft; the other running north, to connect with the Regent shaft 100 ft. north. The Regent shaft is down 18 ft., and shows the ledge pitching east, the same as in the other workings. A drift is now being carried south (in 10 ft.) to meet the Exchange drift. This, with a drift soon to be constructed, connecting Exchange with Oriental, will open a breast of ore 60 by 190 ft. There are 65 tons of low grade ore on the dumps.

HIDDEN TREASURE.—A tunnel was started the 30th of Sept., a few feet above the O'Neil grade. When it is in under the lowest workings there will be a "slope" of 434 ft. from the bottom of the tunnel up to the lowest ore deposit yet found on the mine, and will be 538 ft. below the croppings. The work will be pushed day and night.

SOUTH AURORA.—Shaft going down in Trewella drift. Shaft going down in Sheridan drift. Tunnel in 150 ft. and going ahead at a rapid rate. The last contract was for 100 ft.

WARD BEECHER.—The immense cavity



opened by the blast last week shows several thousands tons of rock in sight. All the available force of the Ward Beecher men are engaged digging a ditch from the hoisting engine to the water tank, to protect the pipes from freezing during the winter.

**GLAZIER.**—Working as usual from the Slanson shaft, to connect with the Osborn shaft. Running in fair ore.

**GREAT WESTERN.**—All work is let out on contract. The upper shaft is down 46 ft. A contract is let to put it down 25 ft. into the vein.

**ROUGH AND READY.**—This mine is started up by an English Co. to test the ore. If it turns out satisfactory, the Co. will purchase.

**NOONDAY.**—A new strike was made last week. The breast of ore is 15 ft. wide. The depth has not been determined. Assays show that the ore will mill, without assaying, \$100 to the ton.

**GEN LEE.**—Drifting from the old chamber, in a northeasterly direction up the hill. Running in fair milling ore and piling on the dump.

**ICEBERG.**—Taking out ore that will mill \$150 to the ton. Vein increasing in width and ore improving daily. Raising north-west and taking up a breast of 150 ft. wide. Also drifting northeast.

**ASHBURY G. & S. M. Co.**—The force of men will be increased next week. Work is going ahead in the tunnel and two side drifts. Occasionally a bunch of fair ore is found.

**CALUMET.**—This location is situated above the Ward Beecher tunnel. Running tunnel.

**BOWDEN.**—Located 200 ft. south of the Tom Paine. Work started up yesterday.

**NORTH AURORA.**—Lady's Chamber looking same as last week.

**ENERHARDT.**—Finding good ore in the open cut.

**SILVER WAVE.**—Same force of men employed as last week.

**GENESEE.**—Commenced sinking the 100-ft. shaft Tuesday. Going through fair ore.

**WEST SIDE WISSAHIRON.**—Late discovery. Situated above the Trench, a half mile east and running parallel with it. Ore resembles the Trench. Work commences Monday.

**TRENCH.**—Sinking in main drift and finding a good body of fine ore. Hauling ore to mill.

**BALD EAGLE.**—Sinking incline. Now down 125 ft. The ledge has increased to 7 ft. wide since last report.

**PHILA.**—Incline down 90 ft. Sinking in good ore. Ledge from 4 to 5 ft. wide.

**OUTSIDE DISTRICTS—SHELL CREEK.**—Good reports come in from the mines. The mill has arrived at Rubyville, and will be put up soon.

**TROY.**—A force of men left here yesterday for the Co.'s mines. The mill will start up as soon as the furnaces are completed.

**MILLS—INTERNATIONAL.**—Running 60 stamps on ore from Ward Beecher and North Aurora mines.

**SWANSEA.**—Running on East Sheboygan and custom rock.

**MANHATTAN.**—Running on Ward Beecher consolidated.

**STANFORD.**—Running on South Aurora rock.

**BIG SMOKY.**—Running on Hidden Treasure and company rock.

### Arizona.

**IMMENSE YIELD OF GOLD.**—Prescott *Miner*, Sept. 30th: C. Y. Sheldon has arrived from Lynx Creek, with \$1,135 in gold dust, and \$200 in specimens, the proceeds of about 44 tons of Vernon ore.

The following sales have been recorded since our last issue:

J. Walker to R. D. Stubblefield, 200 ft. in Gordon & Power location, on Tiger lode, \$4,000.

M. Mills to L. Bashford, 100 ft. in same location, \$2,000.

M. Mills to A. J. Moore, 100 ft. in same location, \$1,500.

Hammond to Stubblefield, 100 ft. in same location, \$1,500.

Stubblefield to L. Bashford, 100 ft. in same location, \$1,500.

**ITEMS.**—The Tiger and other Bradshaw lodes are yielding richer silver and gold rock than at any previous time.

The Del Pasco mine was running early this week.

The owners of the Great Sexton have tapped the mine with their tunnel, and like the looks of things.

Rich silver ledges have recently been discovered in Turkey Creek dist. Some of the ore has yielded \$2,000 to the ton in silver.

The Benjamin, La Plata and other silver lodes near Prescott are looking well. Specimens of ore from the Benjamin shown were rich in silver and gold, the former

being in chloride, ruby, horn and other varieties.

J. Dolan allowed us to handle a piece of gold weighing \$4.35, which he had taken out of 5½ lbs. of ore from Louisiana lode, Tiger Dist., upon which ledge he has a shaft 18 ft. deep.

### Colorado.

**BULLION.**—Clear Creek County, cor. of Central Register, Oct. 11th: The Stewart Reducing Co. shipped on the 4th inst. \$1,000 worth of silver bullion, and for the week ending the 5th, 229 ozs. valued at \$6,797 coin. Palmer & Nichols' shipment amount to \$1,000 every day. Prof. Dihin is shipping about \$500 worth of silver daily. On the 5th, he shipped two silver bricks, from Belmont ore.

**Caribou Post, Oct. 7th:** The Mammoth lode near Cardinal, is vigorously worked. Dr. Hopkins, the owner, has a complement of men in 3 shafts.

The Sturtevant, west from the Mammoth, is a strong, true vein. It assays at the rate of \$1,300 in gold, and about 25 ounces in silver per ton. The main shaft is 23 ft. deep and work progressing.

The Elephant is one of the mammoth veins of Caribou Hill, with black sulphurets in a soft, white gangue, with a six ft. crevice, easily mined.

The Monitor, is well-cripped to the depth of 64 ft.

**MINERAL HILL.**—Sherman, an early discovery, is next to the Caribou, the most valuable mine of the hill. The main shaft is 70 ft. deep.

In the Morning Star they have now attained a depth of 74 ft., with a gradually widening crevice.

The Illinois, has since its discovery been opened 20 ft. deep. Tests made by their best ore show its value to be \$500 per ton.

**ITEMS.**—Georgetown *Miner*, Oct. 5th: The timbering on the Cliff mine is completed and the workmen are now taking out ore. We record another discovery on McClellan Mt. named the Holden.

The surface ore, 1,400 pounds by mill treatment, yielded, the first-class 636 ozs. per ton, and the second-class 159 ozs. per ton. Leavonworth Mt. is yielding an immense quantity of rich ore. Thompson & Co. are digging out float rock in considerable quantity. The mineral, from 4 to 5 tons, this company have dug out runs 600 ozs. per ton. The crushing and sampling works of the Trenton Gold and Silver M. Co. at Silver Plume, is running on rich ore from the Stevens, Pelican, Silver Plume and Snowdrift.

**SUMMIT Co.**—The Chautauqua, Snake River dist. the discovery shaft is 60 ft. deep.

The Silver Wing, the property of the St. Lawrence S. M. Co. is rapidly assuming the character of a first-class mine. The ore vein is large and the indications are that a rich body of milling ore will soon be reached. The reduction works are in a forward state of completion.

### Idaho.

**BOISE STATIONER.** Oct. 15th: Advice from Yankee Fork diggings are not flattering. Parties just in report that the first prospects obtained were delusive, and that the miners are discouraged, and abandoning the camp.

### Montana.

**MOOSE CREEK.**—Deer Lodge Independent Oct. 7th: The Dixie has now an 8 foot ledge and is turning out a superior quality of ore. Two astras are upon rock from it and this number will be doubled the ensuing season.

**BEARTOWN.**—Cor. same: A \$100 nugget has been taken out.

**CARLE CITY.**—J. D. Bell of the placer mines tells that the last run made from their mine was highly satisfactory. They are busily in making flume boxes, expect to have ready for use by early Spring. They have on hand a large number of tons of fine quartz, picked up while sluicing, which they will have crushed next week.

### Utah.

**PROOHE BULLION.**—S. L. Tribune Oct. 11th: W. F. & Co., received on the 6th, from the works of Raymond & Ely, 15 bars of fine bullion, worth \$43,561.41; and from the Meadow Valley Works, 8 bars, worth \$11,357.60.

From East Cañon, Pioneer mills, 4 bars worth \$6,393.99.

**COMET.**—The ore is a beautiful carbonate and will assay very high. The claim is being developed by an incline.

**DEEP CREEK MINES.**—About 150 miles from S. L. City in Tooele county.

**SALE.**—The Silver Cloud mine, Camp Floyd dist., has been sold to an English Co. for \$500,000.

### Mining Stock Market.

THURSDAY EVE., Oct. 19th, 1871.

The sales at the San Francisco Stock Board for the week ending Thursday the 12th inst. were unusually large, amounting to \$1,200,500. The monthly sales since January 1st aggregated nearly \$95,000,000, the largest amount on record and over 100 per cent. in excess of the same time last year. Last week the share market was more active than it has been for some time. The Chollar-Potosi report 600 tons out last week. The last weekly report of the Hale & Norcross shows 1,200 tons of ore extracted and 2,500 tons of low grade on the dumps. From the Savage 1,032 tons were extracted. At the recent annual meeting of the Eureka Consolidated Co. there was a surplus of \$130,000 cash assets, The Eureka Co. of Grass Valley, held their annual meeting this afternoon. Trustees elected were L. S. Adams, (President); Wm. Watt, (Supt.); R. T. Morrow, Geo. W. Beaver, M. Bulkley, F. Berton was chosen Treasurer and R. Wegener, Secretary. The receipts for the year were \$567,349, and \$360,000 were disbursed as dividends to stockholders.

**Comparative Prices, Extremes, Advance and Decline.**

	Oct. 12.	Highest.	Lowest.	Oct. 19.	Adv.	Dec.
Alpha	315	14	—	—	—	—
Amador	290	290	—	—	—	—
Bolcher	410	35	295	—	—	—
Chollar-Potosi	32½	3	29	36	3½	—
Cons. Virginia	3	—	—	9	—	—
Crown Point	322	322	—	—	—	—
Danoy	—	—	—	—	—	—
Empire Mill	—	—	—	—	—	—
Eureka Cons.	25	20	14½	15	—	—
Golden Chariot	112	16½	107½	—	4½	—
Gould & Curry	112	16½	107½	—	4½	—
Hale & Norcross	92	140	87½	16½	—	—
Ida Elmore	3½	3½	3½	3½	—	—
Imperial	—	—	—	—	—	—
Kentuck	175	175	165	160	—	15
Mammoth	35	34½	31	—	—	—
Meadow Valley	34	34	—	—	—	—
Occidental	—	27½	27½	—	—	—
Opbir	25	26	24½	24	—	1
Orig. Hid. Treas.	7½	39	22	26	—	3½
Overman	—	39	22	26	—	—
Savage	42½	43	41½	42½	—	—
Sierra Nevada	—	—	—	—	—	—
Silver Wing	—	—	—	—	—	—
Yellow Jacket	61½	62	58	60	—	1½

### Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons.	—	—	Ida Elmore	3	3½
Amador	275	—	Imperial	—	—
Bolcher	314	—	Kentuck	155	159
Chollar-Potosi	32	36	Meadow Valley	25	26
Cons. Virginia	—	—	Occidental	—	—
Crown Point	—	—	Opbir	24	25
Danoy	28½	—	Orig. Hid. Treas.	6½	7
Eureka	14	15	Savage	42½	43
Golden Chariot	13	15	Sierra Nevada	—	—
Gould & Curry	107	112	Yellow Jacket	58	60
Hale & Norcross	105	108			

### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENT.	OF SALE.
Argenta S. M. Co., Nev., Sept. 4, \$5,000.	Oct. 7—Oct. 28	—
Alameda Coal M. Co., Cal., Sept. 7, 500c.	Oct. 1—Oct. 30	—
Bellevue, Placer Co., Cal., Aug. 30, \$1.	Oct. 3—Oct. 23	—
Buckeye, Lyon Co., Nev., Sept. 11, 50c.	Oct. 10—Nov. 3	—
Danoy & S. M. Co., Nev., Sept. 21, \$2.	Oct. 25—Nov. 13	—
Emp. & Mill M. Co., Nev., Aug. 23, \$12.	Oct. 27—Oct. 13	—
Gold Run M. Co., Cal., Sept. 5, 25c.	Oct. 10—Nov. 11	—
Golden Chariot, Sept. 12, \$5.	Sept. 23—Nov. 13	—
Gould & Curry, Nev., Sept. 28, \$15.	Nov. 12—Nov. 22	—
Highland S. M. Co., Nev., Oct. 9, 10c.	Nov. 13—Dec. 4	—
Imperial, G. Hill, Sept. 21, \$10.	Oct. 24—Nov. 11	—
Jackson, Lander Co., Nev., Aug. 25c.	Oct. 4—Oct. 24	—
Julia, Storey Co., Nev., Aug. 31, 50c.	Oct. 28—Nov. 16	—
Kincaid Flat M. Co., Cal., Oct. 11, \$2.50.	Nov. 13—Dec. 4	—
Mabogany G. & S. M. Co., I. T., Sept. 4, \$3.	Oct. 12—Oct. 31	—
Metropolitan M. Co., Nev., Sept. 11, \$1.50.	Oct. 16—Nov. 2	—
Nevada Land & M. Co., Nev., Oct. 12, 4c.	Nov. 11—Dec. 4	—
North American Con. M. Co., J. 31, 20c.	Sept. 28—Oct. 18	—
Orig. Hid. Treas., W. P., July 6, \$2.	Oct. 31—Nov. 22	—
Oreum, Nev., Sept. 28, \$4.	Oct. 28—Nov. 16	—
Phoenix, Lander Co., Nev., Sept. 27, 50c.	Nov. 1—Nov. 21	—
Piermont, W. P., Sept. 4, \$1.	Oct. 28—Nov. 9	—
Pocobontas G. M. Co., Cal., Sept. 18, \$3.	Oct. 28—Nov. 27	—
Silver Wave, White Pine, Sept. 1, \$1.	Oct. 3—Oct. 30	—
St. Louis M. Co., Nev., Sept. 5, \$3.	Oct. 9—Oct. 25	—
St. Louis M. Co., Placer Co., Sept. 23, 50c.	Oct. 25—Nov. 13	—
South Eureka M. Co., Nev., Sept. 21, \$1.	Oct. 23—Nov. 13	—
Union, Sierra Co., Cal., Sept. 22, \$1.	Oct. 23—Nov. 13	—
Washington & Creole, Nev., Sept. 21, 50c.	Oct. 30—Nov. 25	—

### MEETINGS TO BE HELD.

Eureka	Annual Meeting, Oct. 19
Exchequer	Annual Meeting, Oct. 16
Nevada Borax Co.	Meeting, Nov. 15
Opbir G. M. Co.	Meeting, Oct. 23
Peter Walter	Annual Meeting, Oct. 12
South Chariot	Annual Meeting, Oct. 16
Southern Gold Hill M. Co.	Meeting, Oct. 11
U. S. Grant G. & S. M. Co.	Annual Meeting, Oct. 14

### LATEST DIVIDENDS.—(Within Three Months).

Black Diamond Coal M. Co.	Payable Sept. 15
Chollar-Potosi	Payable Sept. 15
Eureka Cons.	Payable Sept. 20
Eureka Cons.	Payable Oct. 20
Keystone M. Co.	Payable Sept. 16
Meadow Valley	Payable Sept. 15
Meadow Valley	Payable Oct. 13
Natoma, div. 1 per cent.	Payable Aug. 5
Natoma	Payable Sept. 15
Pocobontas G. M. Co.	Payable Sept. 15
Raymond & Ely	Payable Sept. 18
Redington 1 per cent.	Payable Aug. 5
Succor Mill and M. Co.	Payable Sept. 15
Succor Mill and M. Co.	Payable Oct. 16
Yule Gravel M. Co.	Payable Oct. 14
Yule Gravel M. Co.	Payable Oct. 14

\*Advertised in this journal.

\$5 to \$20 PER DAY AND NO RISE.—Do you want a situation as salesman at or near home to introduce our new Tinsmithing, Wire Cloth, and other articles? Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill.

LADIES DESIRING TO PURCHASE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Broadway, 1st E. 29th St., New York. Good work at high prices if desired. 21v1-12mbp

### San Francisco Retail Market Rates.

FRIDAY, October 20, 1871

MISCELLANEOUS.	
Batter, Cal. fr. 60	65
Pickled, Cal. fr. 45	50
do Oregon, D.	—
Honey, Fr. D.	25
Cheese, Fr. D.	20
Eggs, per doz.	60
Red June	18
Sugar, cr. 65, B. 1	60
Brown, do	10
Beet, do	180
Sugar, Map. B.	25
Dry Mex. Hides.	15
Peaches, dried, 15	20

PRODUCE, ETC.	
Codfish, dry, 8	10
Flour, ex. 8 bid.	80
Superfine, do	60
Corn Meal, 100 B. 30	63
Wheat, 100 B. 2½	135
Oats, 100 B. 1	50

FRUITS, VEGETABLES, ETC.	
Pine Apples, 150	60
Islands, Fr. D.	300
Cal. Walnuts, B.	30
Cranberries, 1/2	75
Cranberries, 1/4	25
Apples, early, B.	50
Red Astra n.	50
Red June	20
Pears, table, Fr. D.	75
Plums, Cherry, 1/2	6
Junco, 1/2	10
Apricots, Royal, 1/2	3
White, Fr. D.	25
Raspberries, B.	18
Strawberries, B.	25
Blackberries, B.	8
Oranges, Fr. D.	25
Lemons, Fr. D.	25
Limes, Fr. D.	25
Figs, dried, B.	10
Asparagus, wh.	37½
Artichokes, B.	6
Brussels sprouts, 1/2	15
Beets, Fr. D.	20
Potatoes, Fr. D.	2
Potatoes, sweet, 1/2	10
Broccoli, Fr. D.	10
Carrots, Fr. D.	10
Carrots, Fr. D.	10

POULTRY, GAME, MEATS, ETC.	
Chickens, apiece	50
Turkeys, Fr. D.	25
Ducks, wild, Fr. D.	50
Geese, Fr. D.	10
Feal, Fr. D.	300
Ceaso, wild, each	50
Tame, Fr. D.	25
Venison, Fr. D.	75
Snipe, Fr. D.	25
English, Fr. D.	25
Quails, Fr. D.	25
Pigeons, dom. do	10
Smoked, Fr. D.	10
Hares, each	40
Rabbits, tame	50
Wild, do	25
Squirrels, Fr. D.	25
Beef, tend, Fr. D.	20
Sirloin and rib	18
Corned, Fr. D.	10
Smoked, Fr. D.	15
Pork, rib, etc.	12½
Chops, do	12
Veal, Fr. D.	15
Cutlet, do	20
Mutton chops	12½
Lamb, Fr. D.	12½
Tongues, beef, ea	75
Tongues, pig, ea	15

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## INDIFFERENT METALLURGY.

(From the Overland Monthly.)

(Continued.)

Are the efforts now being made by these Eastern cities to be ignored by us? Must we continue to look upon their gigantic exertions with apathy? Shall we allow them to offer inducements for the shipment of ore which we ourselves possess, and remain inactive? Our assumed superiority is an insufficient excuse for our apparent disinterestedness. That superiority is, in reality, entirely mythical. The cost of transit of ores from the great basins of Utah and Nevada to any of the great centers of the East, compared with the same here, is more than counterbalanced by the cheaper labor they can employ in their subsequent reduction. And the coal mines of Pennsylvania, from whence they draw their fuel, are as conveniently situated to them as those of Sydney and Nanaimo are to us. The monopoly of any particular branch of industry, by any particular city or locality, is mainly attributable to the priority of its establishment by them, of which fact we have numerous examples in the cities of the Eastern Hemisphere. Swansea, for instance, has thus become the smelting-place for the metalliferous products of the civilized world. If we only allow the Eastern cities to anticipate us in obtaining the business of reducing the ores of the West, then we may rest assured that they will retain it, in defiance of all efforts which we may hereafter think incumbent upon us to make.

As to the manner in which the treatment of our own ores would materially benefit us, it is only requisite to state, that, in addition to the large surplus of lead which leaves our local smelting works, upwards of a thousand tons of lead ore leaves this city annually for treatment in Europe, and returns to us again, in a manufactured condition, as white lead, amounting in the aggregate to about 1,200 tons per annum. Furthermore: being extensive consumers of sulphuric acid, we are now compelled to import large quantities of sulphur from Sicily for the purpose of manufacturing it. In Europe, the necessity for economizing in every branch of industry has caused them to devise means for saving all the by-products of ores. By employing the *Gerstenhofen* furnace for roasting, the sulphur contained in the copper ores is at once converted into sulphuric acid. Previous to the application of this method, the annual value of the sulphur wasted in Swansea was estimated at \$1,000,000. Provided we reduce our own copper ores, we would extract an ample supply of sulphuric acid, to the utter exclusion of foreign importations.

Our civilization being a progressive one, the industries increase with the development of the country, and a demand is created for the various minerals which we possess. It remains only for us to convert them into that state wherein they can be applied. To do this, we must reduce them. It is in neglecting to reduce its ores that Chili finds its financial ruin. Its deposits of copper ore, which are unequalled, excepting by our own, are being exhausted for shipment elsewhere. They undergo no process of purification in the country; consequently, the actual labor employed in its industries is limited to that which is engaged in its mines.

Another thing connected with our metallurgy, which has been overlooked by us in the past, is that of the ignorance of those engaged in the development of our mineral wealth. This has already materially injured our interests. The immense quantity of the precious metals that has hitherto been produced has been extracted from our rocks at an enormous sacrifice and waste, resulting altogether from the incapacity of those engaged in its extraction. We cannot understand why the California miner should not receive an education that will fully qualify him for the duties and responsibilities that necessarily devolve upon him, as well as any craftsman in the mysteries of his trade. It is well known that one educated in any of the European mining-schools is altogether incompetent in the management of our mines, and utterly at a loss as to the proper manner in which to treat their products. He is little, if any, better off than him who has had none of the advantages of a scientific education. He is, in fact, compelled to divest himself of much of that which he has been taught, and to go through a new and entirely different course.

The cause is apparent. European mines are already opened. The mode of working them, as at present carried on, and in which the student is instructed, has been

the same for generations. Our mineral deposits, on the contrary, are in their primitive condition. The character and peculiarities of the formation have to be studied and understood. The mines require opening. To open them successfully, and to develop them in an advantageous manner, it is now actually requisite to obtain a large amount of local practical experience. Many expedients have to be resorted to, for the sake of experiment. These deficiencies are naturally injurious to every one interested, and the evils attending them can only be obviated by a systematic local, scientific, mining education, so as to familiarize the future miner with all the difficulties he will have to contend with, in opening and working our mines.

The treatment required by the ore, after its extraction from the bowels of the earth, is also foreign to that of all other countries, and peculiar to itself. Its chemical composition is such that it requires a new and unknown treatment to the foreign student. The specimens of the minerals of one country cannot be taken as representing the ores of another, and the manner in which the ores of one is successfully operated upon does not necessarily apply to those of another. Each country requires a special treatment of its ores, which is applicable to them only. The European student is instructed only in the best manner of treating the ores existing in the particular locality wherein he receives his education. The samples given to him for analysis are obtained from adjacent mines, and it is with them only that he becomes familiar.

Having no schools in California wherein a metallurgical education is made a specialty, those who are desirous of obtaining such are now compelled to go to Europe for it. This is not only a great loss to the student, but it also deprives our State of the fruits of his researches and analysis of minerals during the time he is receiving his education. His labors enrich the metallurgical knowledge of that particular country only.

## SELF INTEREST.

BY WM. M. ORMSBY.

(Read before the Liberal Club of New York City, at its 2d Anniversary.)

Scientifically considered, the speeches here to-night are mainly the exhalations of the lungs—carbonic acid gas—a deadly poison. How beautiful is Nature thus to give us so much delight through the waste of respiration a mere excretion of the system.

In like manner is human selfishness, that hateful, ugly, fearful thing, made to do duty as the preserver of the species, the mainspring of mental, moral and physical progress. In spite of himself, the most selfish man must work for his species when he works for himself. Is he a miser? His accumulated store must ultimately do duty for the use of others.

Is he an artist? His beautiful work is equally the property of his fellow men. Is he a speculator in food? His greed will save the scanty store from waste that it may be hived for the days of famine. Is he a merchant? His ships must sail to distant lands to bring their rare and costly products for the use of his less wealthy neighbors. Is he a writer? His brain-work must contribute to the amusement or culture of the unlettered or ignorant.

In every direction that human selfishness extends, it must include more than one in its results—though not perhaps in its motive.

How all potent, far-reaching, untiring, sleeplessly vigilant, is selfishness! Shall we be chided then for seeking to enlighten it, and to recognize in it the most powerful agent for human improvement. It is not a question whether it is degrading for men to be moved by self interest? Is it a fact?

Science is not ashamed to say that man has descended from a monkey! Need it shrink from the acknowledgment that the motive for man's noblest actions is his own gratification? Is our generosity less good because we take our pay in the pleasure of it?

But, says Universalogy, "what is the use of thus constantly reminding us of the ignoble origin of our noblest deeds? Our food was once the muck heap. Why tell us of it!" For this reason; that some men are constantly telling you that it was not a muck heap, and that the best fertilizers are fragrant essences. The point is not

whether it is agreeable to hear it—is it true?

But again, says Pseudo-Positivism, what is a name? You have stolen our "*Altruism*" and called it "Enlightened Self Interest."

There is this in a name—that Positivism makes virtue a self denial and leaves you to infer that in order to do right you must make yourself miserable. The Book was nearer right when it said: "It is better to give than to receive." Men give because they think it is better, and take their pay in self satisfaction.

What need we care for the sneering taunts of those who say we are constantly "grinding axes in the Liberal Club," where don't they grind axes? Do our open doors harm anybody? Is our unequalled elocution less pleasing because it is an advertisement?

Surely not, for you are all always glad to hear it. Is our scientific exposition less valuable because it comes from professional instructors? Are our medical lectures less instructive because they are delivered by a physician in growing practice? Is our altruism less advantageous because its advocate is the prospective high priest of positivism? Is our phonetic reform of less value because its champion is the author of the complete phonographer? Shall we cease the advocacy of protection because the American copper interests are to be benefitted thereby? Are our addresses on longevity of less account because their author happens to be President of an insurance company? Is our universalogy less a great discovery because its prophet publishes a hook?

Is our political economy less instructive because it is expounded by enthusiasts who have made it a life study? Is our exposition of the Industrial Exhibition less interesting because somebody may make money by it? Is our scheme for the preservation of wood less valuable because it may be a source of profit? Is our enlightened self-interest less a great system of ethics because he who preaches it is a conceited spouter? If we were all monomaniacs the world would get some benefit from our hobbies.

Ponder these things, and judge men's actions by the results and not the expected results. You will then see that people may intend to be charitable and generous, and lofty, and high-minded; while in fact they may be doing the silliest and most hateful things to society; while another may intend to be selfish and only succeed in benefitting others.

Now please don't represent me as saying that all the generous people are bad, and all the selfish people good.

What I do say, is that self-interest is a pent-up human impetus. I believe that the greater part, and that the system of nature is wisely so ordained that upon the whole this self-interest is a benefit to the race, because it is not all blind and ignorant; but is all the time growing more far-seeing and good—sacrificing present pleasure for future and more permanent pleasure, and growing more and more conscious that the rights, duties, and interests of no one can conflict with the legitimate rights, duties, and interests of any other one. We may all then look out for the high No. 1 as well as the low No. 1; the mental and moral as well the physical No. 1. Let every one really look out for No. 1 and we shall have a perfect humanity.

## Prolific Growth of Cherries.

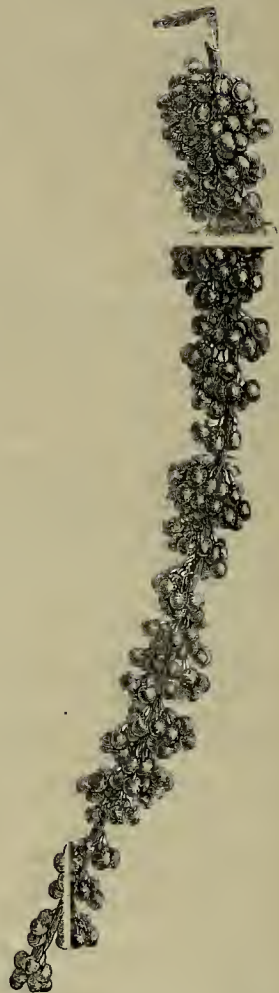
We present herewith a correct representation of the remarkable cherry tree limb which we received some time since, (by the kindness of Mr. Wilkinson of the Deaf and Dumb Asylum), from the nursery of Mr. Seth Luelling, on the Willamette river, near Milwaukie, Oregon. This limb was seven-eighths of an inch in diameter at the point where it was severed from the tree, measured five feet in length, contained 354 cherries, and weighed with its fruit seven pounds. The cherries are very large, nearly one inch in diameter, and are of the Royal Ann variety.

After exhibiting the limb for a few days on Montgomery street, it was cut into short lengths and placed in alcohol, in which condition it was shown at the late Mechanics' Industrial Fair, and may now be seen at the office of the PACIFIC RURAL PRESS, No. 333 Montgomery street.

The cherry is one of the most delicious of all small fruits. It delights in a rather heavy soil, and a high and dry locality. It is a very tender tree to cultivate and re-

quires the greatest care and attention. So highly is it appreciated, that well grown, healthy trees of approved varieties, in the vicinity of our Eastern cities, have been known to represent a capital of one and even two hundred dollars, and so rated in the transfers of real estate. Such trees in the vicinity of New York or Boston will often produce an annual value of \$30 or \$40 each.

When located in a suitable soil, and properly cared for, the cherry proves a very long lived tree. One of the earliest cherry orchards in the country was planted in 1780, in the "Delaware Highlands," near Wilmington, in the State of Delaware, a locality which seems peculiarly adapted to the growth of this tree, and which answers well to the description above given



of the soil best suited to its growth. Most of the cherry trees originally planted in this orchard are still flourishing. Generations of trees from this stock have been planted near to the original locality and have passed away, while the veteran pioneers still flourish and yield annually large crops of fruit.

A NEW invention consisting of a machine combining the advantage of an alarm pump, fire engine and ship's pump, was recently tested at Dover, N. H., and is said to have given great satisfaction to a number of interested gentlemen present at the trial. The signals are made by means of a whistle, blown by compressed air in the pump, and this whistle, under ordinary circumstances, can be heard three miles. The signals for fog, pilot, distress, for course, etc., consist of long, medium and short blasts, according to the key furnished, and by a similar process a telegraphic alphabet can be used for communication. By changing the action of the machine, water may be pumped from the ship, or into the ship to extinguish fire. The entire apparatus is in very small compass, is very simple, and with all its arrangements cost but \$150.

The Mississippi, is lower than it has been for some years; cattle now roam where a few months ago steamboats navigated.



## USEFUL INFORMATION.

## The Egyptian Pyramids.

Many erroneous ideas are prevalent with regard to these wonderful structures, and particularly with regard to the Great Pyramid of Cheops. The latest and most authentic researches fairly disprove the early and still common idea that they are tombs of Egyptian kings. All the known burial places of the ancient kings of that country, are elaborately carved and inscribed with emblems of self-glorification. But it happens that the greatest of all the pyramids, which, if any would have been so inscribed, contains nothing of the kind. Nothing but plain geometrical surfaces are seen, all of exquisite workmanship. The faces of the stones are worked into true mathematical figures, with their edges and surfaces ground to perfect lines, and polished, so that the joints are almost imperceptible, no thicker than a sheet of paper.

The Great Pyramid is thought to be the oldest, as it is the most perfect of all in construction. It is perfect in design and uniform in execution throughout, and is also constructed of uniform quality and character of material from top to bottom. The other pyramids are less perfect in construction, are not built of uniform material, and do not present a uniformity of design. The great pyramid is "founded upon a rock,"—compact limestone—whose surface is about 100 feet above the general level of the valley of the Nile. Deep excavations were made for the foundations. If it had been built in the valley, it would undoubtedly have lost its level long ere this, and perhaps have sunk or been covered well up to its summit. It is supposed by some that the walls of Babylon, which were built upon such a foundation, between settling and the natural accumulation of drift, have been entirely covered up from sight!

The height of some remarkable structures on the earth are as follows: St. Paul's, London, 360 feet; St. Paul's, at Rome, 432; Strasbourg Cathedral, 468; Pyramid of Cheops, variously set down at from 484 feet, 11 inches, to 486 feet, 3 inches. The latter is thus the largest and highest, as well as the oldest and most enduring monument constructed by the hands of men. With 4,000 years' of experience since this structure was completed, the best of men cannot excel it either in design or perfection of workmanship.

**WHAT TO DO IF THE CLOTHES TAKE FIRE.** Perhaps three persons out of four would rush right up to the burning individual, and begin to paw with their hands without any aim. It is useless to tell the victim to do this or that, or call for water. In fact it is generally best not to say a word, but seize a blanket from a bed, or a cloak, or any woolen fabric—if none is at hand, take any woolen material—hold the corners as far apart as you can, stretch them higher than your head, and running boldly to the person, make a motion of clapping in the arms, just about the shoulders. This instantly smothers the fire and saves the face. The next instant throw the unfortunate person on the floor. This is an additional safety to the face and throat, and any remnant of flame can be put out more leisurely. The next moment immerse the burnt part in sweet oil. Next get some common flour, and put it on the burn, about an inch in thickness, and if possible put the patient to bed. Let the flour remain until it falls off itself, when a beautiful new skin will be found. Unless the burns are deep, no other application is needed. Dry flour for burns is the most admirable remedy ever proposed, and the information ought to be imparted to all. Dredge on the flour until no more will stick, and cover with cotton batting.

**TO PREVENT BOILER EXPLOSIONS.**—The record of English patents, shows one designed to prevent explosions of steam boilers, which may be worth noticing. The device consists in providing a hole in the upper part of the boiler, and covering the same with a material (India-rubber for example) of sufficient strength to withstand ordinary pressures, but which will give way and allow of the escape of steam under excessive pressure. The India rubber is clamped to the boiler by a flanged tube formed for the purpose.

**IMPROVEMENT IN THE LOOM.**—An "air-blast loom" has been invented in England, in which the shuttle is driven by means of the sudden release of a very small quantity of compressed air, acting directly upon the shuttle, without any of the complicated machinery required in former contrivances of the kind.

## Something about Toads.

The scientific Professor Wood has been studying toads. He concludes not only are they harmless, but they are absolutely and directly useful to us, perambulating our fields and gardens at night, devouring vast quantities of injurious insects which could never be destroyed by the hand of man. The mode in which a toad takes his prey is very curious. The singularly beautiful eye of the toad is as quick as it is bright, and if within range of its vision an insect or a grub should happen to move, the toad is sure to see it and almost sure to catch it. First the toad holds its head as high as possible, so as to make sure of its prey, and then crawls slowly toward it, preferring to get under it if possible. When it is nearly within reach it gazes intently at the insect, its mouth being brought nearer. Something pink then flashes from its mouth and the insect vanishes as if by magic. The pink flash is the tongue of the toad which is formed in a rather curious way. The base of the tongue is fixed close to the front of the lower jaw, and is long and tapering, the tip pointing down the throat when it is at rest. When however it is used for catching prey, it is thrown out with a sort of "click," and the tip, which is covered with a glutinous secretion, adheres to the insect and conveys it down the toad's throat before the prey has time to make an effort to escape. When the toad swallows its prey it does it with a mighty effort, during which the eyes almost disappear, the size of the insect having little to do with the vehemence of the demonstration. Some times, when a large beetle is swallowed, it does struggle, but too late, and for some time its struggles may be seen through the thin ribbed sides of its capturer; the toad sitting the while in perfect composure, not in the least affected by the scratchings and kicking that are going on in the interior.

**MARE'S MILK.**—Koumiss, the Tartar drink prepared from mare's milk by fermentation, is recommended by a Polish physician as an excellent remedy in all complaints arising from feeble digestion, in nervous irritation, and in different forms of dyspepsia. He says that other kinds of milk will yield it, though that of mares is preferable. The true Koumiss is a piquant, sweetly acidulous, fragrant liquor, which, when taken in large quantities, produces a pleasurable excitement without any bad after effects. It may be varied as to its constituent elements by proper manipulation so as to suit different constitutions. The patient is restricted to its use as food exclusively, beginning with small quantities, at short intervals, and gradually increasing his allowance until it reaches a gallon daily. On this diet as much as ten pounds of flesh has been known to be gained in a month, the Koumiss containing all the plastic, respiratory and heat-giving elements of the body in a form most easy of assimilation. Here is a chance for some enterprising man to start a new system of treatment. A Koumiss cure would be a novelty, and if at all successful, would make a fortune for its manager.

**MODEL RAILWAY MANAGEMENT.**—At Kalamazoo station, midway of the Michigan Central Railroad, there sits an operator at all hours of the day and night (relieved of course by shifts,) who receives telegrams from each train on the road the instant it enters or leaves a station, so that he holds or starts it at will. His eye is literally on the entire line, continually making a collision next to an impossibility; and the immense single track quite equivalent, so far as safety is concerned, to the double track roads. As a result of this careful management, not a drop of blood has been shed inside of a car on this road for over 16 years, during which this perfection of arrangement has been in operation.

**PLANT GROWTH IN WARM AND COLD CLIMATES.**—The active principles of plants, according to recent investigations, are more concentrated in the leaves of plants grown in cold climates, where the vegetation is less vigorous than in warm climates. In illustration the well-known facts are cited that tobacco grown in northern regions is stronger than the same plant raised in mild or tropical regions, and celery, it is stated, is affected in the same way by the influences of temperature and moisture.

**A CLOCK IN A PARASOL.**—A Detroit jeweler exhibits among other fancy goods in his show window a parasol with a perfect clock in the handle.

## GOOD HEALTH.

## Medical Electricity.

**EDITORS PRESS.**—Not far from thirty years since a work was published in which occurs the following language:—Electricity is a subject which has long engaged the minds of philosophers, many of whom have differed very materially in their conclusions respecting it; yet sufficient has been ascertained in regard to it to enable those who are so disposed, to build their structures on practical science, untrammelled by the dogmatic theories and problems of a speculative age." Again, "Electricity we consider the first, the all-powerful principle emanating from the Creator, the power by which all things were made, the grand fiat of Nature, the source of vitality itself!"

This was penned by a philosopher and philanthropist, by whose research thousands of lives have been saved, and who contended that facts and experience should be the only basis from which to act against the enemy of life in any form—that no person had any right to surmise or guess at anything pertaining to the health or life of any one, when that surmising was to be applied to curing disease.

There are in the human organization two distinct systems of nerves, by which it can be seen, with what infinite wisdom nature works; that while one system of nerves is ordained to govern, guide, and regulate the growth, action, motion, strength, sustenance, etc., of the human body, another set has been subsequently constituted as sentinels, to watch, to notify, to give the alarm when danger approaches. Now, hy, or through, the medium of these two systems of telegraph lines, are brought all the workings of the intricate machinery of life, of growth and decay, of composition and final dissolution. How very necessary then that all and everything pertaining to an element which works through these two systems of nerves, to produce life or death, health or disease, happiness or misery, should be the subject of the clearest, most concise science, capable of being communicated, of being reduced to the utmost simplicity for the general understanding.

The modes usually employed for the application of the electrical current—by taking hold of the two electrodes with the hands, only gives a shock across the shoulders, and is of very little use toward revitalizing any part of the system. The positive electrode should be placed above or nearest the main nervous center, from which the vitality arises that supplies the rest of the system, and the negative below or upon the part necessary to restore. By so doing, this powerful revitalizing agent is made to do a double duty—that of quickening the carrying of sustenance to the diseased part, and the passing away with the return current of the morbid elements present. If judiciously applied, permanent invigoration ensues, unaccompanied by the prostration usually consequent upon tonics or stimulants as ordinarily applied.

F. M. S.

San Diego, 1871.

**THE SPOON AS A MEASURE IN THE SICK ROOM.**—A writer in the Canadian *Pharmaceutical Journal*, who has examined the subject critically, says that teaspoons have been gradually growing larger of late years, the spoon of the last century having been only about two-thirds of the size of that in common use. He adds, however, that three sizes are made at the present time—large, medium, and small, containing 95, 85, and 60 minims respectively. Tablespoons, also have increased, and vary from 4.5 to 6 fluid drachms in capacity. He infers that the dose of certain articles may be unsafe, if a teaspoonful or a tablespoonful be ordered, and proposes to abolish the dessertspoon as a measure, substituting two teaspoonfuls. It is rarely, we apprehend, that more than a drachm is administered as a teaspoonful, or more than half an ounce as a tablespoonful. On the contrary, nine times in ten, according to our experience, an ounce mixture, when ordered in teaspoon doses, will afford more than eight doses, and an eight ounce mixture more than sixteen tablespoonfuls. Nurses seldom fill the spoon to its utmost capacity.

## What a Physician's Office Should Be.

Professor McGraw, of the Detroit Medical College, in an address to the last graduating class, raps certain practitioners over the knuckles in the following style: "I have been in doctors' offices where a skull grinned from one corner, ghastly anatomical plates hung from the walls, and splints, suggestive of broken bones, were placed conspicuously in every corner. What a delightful resting-place for a sick woman, visions of death, disease, and injury, greeting her on every side! Now, gentlemen, make your offices, pictures of comfort and cheerfulness. Banish from them every sign of your professional occupation, so that your patients may enter them not only without disgust, but with actual elevation of heart. I think, I need hardly say, that your apartments should be scrupulously clean, although I can recollect too many rooms occupied by physicians, whose windows were festooned with cobwebs and dried flies, and whose floors were stained with tobacco spit. I have been pleased sometimes to hear the occupants of such offices groan about the lack of custom, for if it is the duty of a physician to preach the virtue of cleanliness, he should himself be a living example of his own doctrine. Filthiness in a physician is like dishonesty in a merchant, the very worst of sins." We know of at least one physician in this city who has ever carried out the above idea.

**"BOILING OUT" THE STOMACH.**—At a late meeting of the Atlanta Academy of Medicine, a member gave an account of his favorite method of emptying the stomach when other means had failed, by taking advantage of the effervescence of acid and alkali. A negro boy set 14, was insensible from supposed poisoning by stramonium, and it was found impossible to induce emesis by any ordinary process. "An ash-hopper close by suggested the idea for acids and alkalis to *boil out* the supposed poison. With no time to lose, gave a teaspoonful of lye and the little tartaric acid he had, drenched down, followed by another teaspoonful of lye and a little soda—all he could get—and rolled him over a few times, when he boiled out several quarts of half-masticated, raw, red yam-potatoes. The boy remained insensible twenty-four hours longer, deaf the same length of time, and blind for about eight hours, had some fever on reaction, but made good his recovery." A great hoy that!

**POTATOES IN FOUULTICES.**—Perhaps it is not generally known how much pleasanter and more agreeable, as well as efficacious, is a poultice made of potatoes than one made of bread. It keeps longer, can be reheated several times, and does not wet the clothing. Peel, boil and mash the potatoes; inclose in a muslin bag and apply to the affected part. To hoil them in hot water has a very soothing effect, and enhances their virtue. A poultice made of hoiled beans is by some, thought to be better than potatoes, but both are worthy of a trial.

**EFFICACY OF RE-VACCINATION.**—It is stated in the *Edinburgh Medical Journal* that at a recent meeting of the Glasgow Medical-Chirurgical Society, "not one member was able to adduce one single instance of a revaccinated person having taken the small-pox." The sentiment maintained that when small-pox prevails, every individual above five years of age, in an infected locality, ought to be re-vaccinated. We believe this is the universal conviction of impartial medical observers in all parts of the world.

**CURE FOR CONSUMPTION.**—The following prescription was furnished to the *Lon. Med. Press and Circular*, coming from a clergyman in the West of England, reputed of great skill in diseases of the chest: Isinglass, 1 oz.; eringo root, 1 oz.; garden snails, ½ pint; hartshorn shavings, ½ oz.; three dried vipers from Butler's Convent Garden; 1½ pints water. Boil down to a pint. We suspect it was stolen by the clergyman from Li-po-tai, who was once ardently patronized by a distinguished clergyman of San Francisco.—*Pac. Med. Jour.*

**COMPOSITION POWDER.**—The justly celebrated "Thompsonian Composition Powder" is composed as follows:

Bayberry bark, 6 ounces; hemlock bark, 3 ounces; ginger root, 3 ounces; cayenne pepper, ½ ounce; cloves, ½ ounce.

All finely pulverized and well mixed. Dose: half a teaspoonful with a spoonful of sugar. Put in a teacup and pour on it a half a cup full of boiling water. Let it stand a few minutes, then fill up the cup with milk or water and drink freely.



# Scientific Press.

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Subscriptions payable in advance—For one year, \$4; six months, \$2.50; three months, \$1.25. Clubs of ten names or more, \$3 each per annum. \$5, in advance, will pay for 1½ year. Remittances by registered letters or P. O. orders at our risk.

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San Francisco:

Saturday Morning, Oct 21, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, October 18, 1871.—Legal Tenders buying 88; selling, 88½. Gold in New York to-day, 112½.

## Removal.

The entire business office of the SCIENTIFIC PRESS, PACIFIC RURAL PRESS, and our U. S. and Foreign PATENT AGENCY and ENGRAVING establishment, has been removed to No. 338 Montgomery street, on the southeast corner of California street, diagonally opposite Wells, Fargo & Co.'s.

## Table of Contents.

Intrichment Tools—III.; Silver in Placer County; Signs of Rain.....	241
MECHANICAL PROGRESS.—Two pounds of Coal per Horse-Power; Durability of Steel Rails; Pneumatic Bells.....	242
SCIENTIFIC PROGRESS.—Tremolo for Reed Organs; A New Source of Electricity; Vegetable Carbollic Acid.....	242
The Western Slope of White Pine Mountains; San Dimas Mining District; Bull Run District.....	243
MINING SUMMARY—Stock Exchange and Market Reports.....	244-45
Indifferent Metallurgy; Self Interest; Prolific Growth of Cherries.—III.....	246
USEFUL INFORMATION.—The Egyptian Pyramids; Something about Toads.....	247
Good HEALTH.—Medical Electricity; What a Physician's office should be.....	247
Chemistry of the Washoe Process; New Placer Mining Enterprise.....	248
Map of Cottonwood mines—III.; Our Home Industries.....	249
Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.....	250
Parasitic Worms in Farm Stock—III.....	252
NOTICES OF RECENT PATENTS.....	252

DEVELOP HOME RESOURCES.—According to the Calaveras Chronicle, a large amount of money has been sent out of that locality for the development of the silver mines of Nevada, not one dollar of which has ever been returned; while but very few of those have been benefited who have chosen to transfer their individual field of labor from this locality to Silver Land. The Chronicle makes use of this fact as a text from which to urge upon people generally the policy of the development of their home resources, when they have any, as is the case with Mokelumne Hill, and vicinity. Its advice is applicable to many other localities.

FARE REDUCED.—The C. P. R. R. Co. have reduced the fare from San Francisco to Oakland, Brooklyn and Alameda, to 15 cents; excursion tickets both ways, 25 cents. The monthly commutation rates are continued at \$3, which is cheap enough to suit everybody, being in fact lower than street railway fares have been in San Francisco. An immediate increase of travel on the R. R. followed the reduction, and the Chin-doo-Wan, the opposition boat on the Creek route to Oakland, has discontinued.

LOCOMOTIVES FROM PHILADELPHIA.—Two new locomotives for the California and Oregon R. R., recently arrived at Oakland wharf from the Baldwin Locomotive Works of M. Baird & Co., Philadelphia. They are of good size and fine construction.

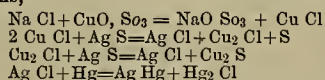
## CHEMISTRY OF THE WASHOE PROCESS.

[Continued.]

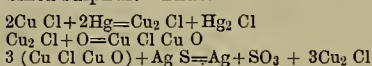
### IV—Chemical Action of Salt and Bluestone.

Concerning this point considerable doubt has been entertained and various theories have been advanced. The two which have been most favorably received, but which differ widely, are the following:

Sonnenschmidt advances the more plausible and generally adopted theory. He claims that the salt and copper sulphate, by mutual reaction, form sulphate of soda, which is neutral in its action, and chloride of copper. The latter acts on the silver sulphide, and yields chloride of silver, sub-chloride of copper, and free sulphur. The sub-chloride reduces a second portion of silver sulphide, forming additional chloride of silver and sub-sulphide of copper. The silver salt is then attacked by the mercury; calomel, or sub-chloride of mercury, is formed, with metallic silver, which last forms amalgam with a second portion of the mercury. Or, in chemical equations,



Bowring, on the other hand, denies that any silver sulphide is chloridized, and asserts that, before amalgamation occurs, metallic silver is produced; that chloride of copper and mercury form sub-chlorides of both metals; the copper sub-chloride in contact with the oxygen of the air, becomes oxychloride, which acts on silver sulphide, giving free silver and oxydizing the combined sulphur. Thus:



Although oxychloride of copper may possibly be found at times, there appears to be no decided evidence of this in practice, or that it decomposes the sulphide of silver, while the experiments already recorded prove that both the copper chlorides, under favorable circumstances, do chloridize the silver sulphurets. The experiments, however, would indicate that the action of the chloride was more intense than that of the sub-chloride.

### V—Practical Experience.

In practice great doubt has arisen among experienced mill men as to the beneficial results of using chemical reagents in the Washoe process, a doubt strengthened by the growing custom of diminishing the quantity of salt and sulphate of copper without apparently diminishing the bullion product.

The action of these two reagents in the pan would appear clearly to indicate that the benefits derived from their use are partly to aid in converting the sulphide of silver into chloride, and partly to decompose such minerals as are but slightly attacked by mercury. The large quantity of iron present, however, must tend greatly to produce sub-chloride of copper almost as soon as the chemicals are thrown into the pulp. The value of these reagents must be considered as only secondary in the decomposition of a large proportion of the Comstock ores. The amounts employed are in most cases too small to effect any very favorable results. On the other hand, where sufficient quantities are employed it is always at the expense of preserving the necessary purity of the mercury.

The action upon the ore of salt without sulphate of copper, in producing any marked results may well be doubted. The use of sulphate of copper without salt, appears to be in greater favor, and its benefit, particularly where galena occurs in any considerable amount, seems pretty well determined by continued experience. Lead is one of the most deleterious metals in destroying the amalgamating energy of mercury, and at the same time is rapidly absorbed when

the two metals are brought in contact. Sulphate of copper expels to a certain extent (but not completely) lead from mercury, copper being amalgamated and sulphate of lead formed.

If a concentrated solution of sulphate of copper be allowed to stand upon lead amalgam the action takes place quite rapidly, mercury containing lead acting much more energetically upon the copper solution than when perfectly pure.

Another advantage in the use of a small quantity of copper sulphate is that under certain conditions a minute quantity of copper amalgam is formed, which causes mercury to act somewhat more vigorously in decomposing silver sulphide than when perfectly pure.

### VI—Action of Iron.

Iron, as a reducing agent, in the pan process probably plays an important part in inducing the favorable results obtained. This may occur in three ways:

1. It aids in great measure, the decomposition of the chloride of silver.
2. It reduces the calomel formed during the operation, the chlorine, combining with the iron, goes into solution, and the mercury is liberated. Thus a chemical loss of mercury is prevented, as well as its sickening by the coating of its surface with a film of calomel.
3. It undoubtedly assists directly in amalgamating, where the two metals are brought into close contact with the easily reducible sulphurets. This action of iron is obtained, not only from the constant agitation maintained, which brings the pulp and metal in contact with the sides and bottom of the pan, but also from the iron disseminated in fine particles through the pulp produced by the wear of stamps, shoes and dies.

### VII—Consumption of Iron.

The consumption of metal from the batteries and pans varies greatly in different mills, depending partly on the construction and grinding effects of the pans, and partly on the hardness of the castings. The following figures from two mills serve to show the quantity of iron per ton of ore worked reaching the pulp from this source. The quantity of ore treated is large enough to afford a very fair estimate of the metal consumed.

ORE WORKED.	LOSS OF IRON PER TON ORE.		
	In Batteries.	In Pans.	Total.
14,000 Tons.	2.78 lbs.	9.42 lbs.	12.20 lbs.
12,236	2.10 lbs.	7.14 lbs.	9.24 lbs.

The fine iron coming to the ore in this way is very considerable in proportion to the other minerals present. If 10 lbs. per ton are added from this source it is equal to 0.5 per cent. In the 3d class ore previously spoken of there is, including the iron from the batteries, less than 2.5 per cent. of iron-bearing minerals present.

[To be concluded.]

## Mr. Roche and the Mining Bureau.

We recently received the copy of a communication to the *London Mining Journal*, written by Hugh H. Roche, of a London Mining Agency, reflecting upon the Mining Bureau of California, on account of the failure of the English purchasers of the Independence mine of Sierra County, to re-sell said mine in the English market at an advanced price. Without any partiality towards the Bureau, we must say we fail to see any real grounds for complaint in the arguments of Mr. Roche. The Bureau does not buy or sell mines, and in this case simply by their hired expert, reported favorably, and it was purchased at what those versed in such matters consider a good bargain, and that with sufficient working capital the mine would prove itself worth several times its cost. As near as we can learn, the real cause of failure to sell the Independence in London is in the fact that the price paid for it here was publicly announced there, and capitalists everywhere do not relish paying largely

advanced rates. This seems to be a sufficient explanation for the failure.

We have also received a communication referring to Mr. Roche's article and giving some facts regarding the organization and objects of the Mining Bureau, which we do not think necessary to insert in the absence of a full publication of the communication in the *London Journal*. Such an organization as the Mining Bureau, honestly carrying out its professions to prevent the sale of worthless mines, is much needed, and until we are assured of its working ill, we believe in its having a fair chance.

## New Placer Mining Enterprise.

Many people believe that the rich auriferous gravel deposits of California are almost entirely worked out, and that it is necessary for the miners now to turn their attention to quartz. The superficial deposits found here in early days of such extent and richness as to attract thousands to our shore, to reap the golden harvest are comparatively exhausted, and in latter days we have been compelled to work the deep-lying placers at some considerable expense and trouble; still in many places in our State gravel claims are being worked with profit, but as a general thing capital is needed for their development as well as in quartz mines. One of the most remarkable and as yet undeveloped deposits in California is a place known as Turners Flat, in Tuolumne county, between Jamestown and Montezuma, on the Stockton and Sonoma roads. It lies close under the eastern wall of Table Mountain, which at this place rises perpendicularly several hundred feet. As long ago as 1855 a number of shafts were sunk and where the bed-rock was reached, in many places, the yield was large, prospecting all the way from \$5 to \$2 to the pan, the average depth of gravel being 100 feet.

The great drawback to the working of this flat has been the volume of water, which at a certain depth has rushed in and stopped the work. They now intend running a tunnel from the western side of Table Mountain to lead the drainage into Mormon Creek, and thence into the Stanislaus river. After this is done the flat can be worked by the hydraulic method. A large amount of auriferous gravel in Table Mountain will also be used in completing this enterprise. Several claims on this flat, the Humbug, Buckeye and Hughes' tunnel, have proved very profitable to their owners. A company is now making a ditch designed to furnish water to the rolling gravel hills on the lower Tuolumne, and making the larger deposits available. Our deep placer mines will yet be a fruitful source of profit to the State and capitalists are beginning to recognize this fact and to assist miners and prospectors in their efforts to develop them.

## PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING OCT. 10.

IDENTIFYING-STAMP.—George Pardy, San Francisco, Cal.

LUBRICATOR.—Erick Ehlin, San Francisco, Cal.

FRUIT PACKING-BOX.—Elisha D. Lewelling, San Lorenzo, Cal.

MEDICAL COMPOUND FOR SORE THROAT, ETC.—Francis Matilda Moore, Chico, Cal.

FRUIT-BOX.—Charles W. Weston, San Francisco, Cal.

METHOD OF REMOVING SUBMARINE ROCKS. Alexey W. Von Schmidt, San Francisco, Cal.

DRIER.—Charles H. Wakelee, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.



Map of the Cottonwood Mines.

The accompanying map is compiled from authentic resources, and represents the mines in the vicinity of Cottonwood Cañon, Utah territory. These mines have of late attracted world-wide attention, both from their extent and richness, and some of them have been sold to English and American capitalists at almost fabulous prices. They are now being worked with energy, and in most instances by parties having an abundance of capital—a thing so much needed in the early development of quartz ledges. The deposits of ore are of almost unlimited quantity, and consist mainly of galena, and carbonate of lead, containing a large proportion of silver and chlorides. Some of the ore is milled, but the majority requires smelting to be worked satisfactorily.

The vicinity of these mines is well wooded and watered, and the Utah Southern Railroad is being extended along the foot of the mountains, and a branch is contemplated to the mouth of the cañon, making increased facilities for transportation. There are two towns near these mines, Central City and Alta, although they are so near together that they may almost be considered as one. The elevation is 8,300 feet. There are a few smelting furnaces in the vicinity, and more are being erected, so that this branch of industry is being carried on successfully as well as mining.

The whole district is in a flourishing condition and miners generally are doing well. Our correspondent W. H. M. sent a complete description of the principal mines, which was published in the SCIENTIFIC PRESS of Sept. 2d, and can be read with interest in connection with this illustration. We will publish next week a fine map of Salt Lake and vicinity with 28 different organized mining districts, showing the relative position and size of each, line of railroad, course of rivers, etc.

**THE PURCHASE OF THE SILVER CLOUD MINE.**—The Salt Lake *Tribune* learns that the English purchasers of the Silver Cloud mine, Camp Floyd District, have visited and examined their newly acquired property, and are highly gratified with its appearance and prospects. From all accounts this is one of the most valuable mines in Utah. The amount paid for it was \$500,000. The sale was effected through the agency of D. C. Butterfield and A. C. Tichenor. We trust the purchasers may never have cause to regret their investment.

**SPRING VALLEY MINING CO.**—The *Butte Record* learns that the Spring Valley mining and ditch Co., of Cherokee Flat, have sold their mining and ditch property to an English company for \$1,200,000. The property is considered well worth the money paid. Hon. G. C. Perkins, of Oroville, receives \$200,000 for his share of the property.

**ON FILE FOR PUBLICATION.**—Mills, at Austin, Nev.; notes from Hamilton, Eureka, and different districts, by W. H. M.; San Diego mines, by "Quartz."

OUR HOME INDUSTRIES.

Business at the city foundries has been better of late than it has for a long time. The fact that more mining machinery is being made now in this city than at any time for the last three years speaks well for the successful and progressive development of our mineral resources, and for the skill of our mechanics.

The RISON WORKS are building some of the heaviest machinery that has yet gone on the Comstock lode. Two engines 20x40 with the boilers, for heavy hoisting works and pumping machinery for the Belcher mine; two engines 18x27 for hoisting works. They have just shipped a 60-stamp for the Brunswick mill and another one of 60 stamps for the Eureka, belonging to the Union mill. They are making 2,000 feet of sheet iron pipe for the water works in Central City, Colorado. Sheet iron pipe is also being made for the Spring Valley Water Works of this city, for Kiu-

At THE MINERS' FOUNDRY they are constructing an engine and a few pans for the new mill which is being built at Rye Patch, Humboldt county, Nev., in place of the one recently burned. They are also making a complete set of barrels, settlers, etc., adapted to Paul's amalgamating process, for a mill at Dun Glen, in the same county. A New York company is building the mill. The machinery is being put up under the immediate supervision of Mr. Paul. They are making also some diamond drill engines and apparatus.

THE FULTON FOUNDRY have just completed one, and are building another narrow-gauge locomotive; the first ever made on this coast. One of them is for the Seattle Coal and Transportation Co., and the other for Flanagan & Mann, of the Coos Bay Co. One of these engines had its trial trip this week, and worked very satisfactorily in all respects. They are making also at this foundry some castings for the water company.

At HENDY'S WORKS, on Fremont street, they are putting up a lot of Hendy's Improved Lamont regulators with a steam valve attached. This is a California invention and keeps the engine at a uniform speed and also gives security in case the governor belt breaks. Mr. Hendy is having made a lot of his concentrators; two for the Kanaka mill, Sierra county; four for the St. Lawrence mine, near Georgetown, El Dorado county; and six for the St. Patrick mine, to replace those which were burnt a short time since. He is making also two for the Virtue mine, about 60 miles from Portland, Oregon.

Cotton Industry in California.

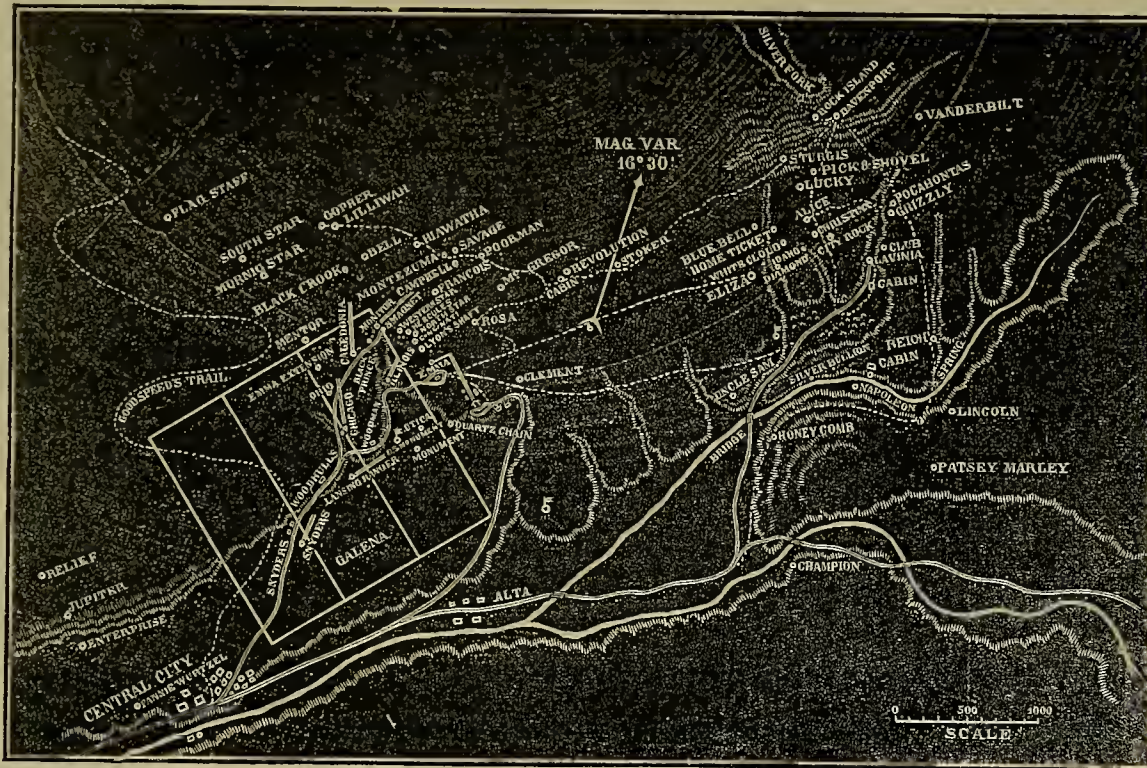
Many of the farmers in California are from the so-called "Cotton States." But few of them, however, have ever undertaken the raising of cotton on an extensive scale. One reason is sufficient to explain this. This industry, at the south, met a very sensible check by the rebellion and its results. The character of labor to be employed in the industry was also quite different. Slave labor ended with the result of the rebellion, and free labor, being rather independent and uncooperative developed itself at pleasure. The labor of the Chinese in California has been mainly utilized in the mining districts, and in the cities, for domestic aid.

There has been no grand scheme for developing the peculiar resources of the State of California, for the purpose of raising the great cotton staple.

About eight years ago Messrs. Livermore & Chester, associated with Mr. Solomon Jewett, experimented on an extensive scale in the rais-

ing of cotton on Kern Island, in Kern county, and with the most gratifying results. So satisfied was Mr. Julius Chester with the results of the experiment that he never lost sight of the value of the cotton enterprise, and upon the organization of the California Cotton Growers' and Manufacturers' Association, in April last, Mr. Chester opened negotiations with that organization having in view the settlement of their industry upon some of his property at Bakersfield, in Kern county. Recently, as we have already stated, the committee appointed to examine the several tracts of land offered by proprietors, with a view to decide the location of the plantation, having visited Kern Island, selected that locality as the best presented, and Messrs. Livermore & Chester will no doubt be gratified, as the pioneer cotton planters of the State, in seeing that industry established upon an extensive scale, on their original plantation. These gentlemen, we understand, sell the Cotton Growers' Association 30,000 acres of very suitable lands for stock in the concern, as we stated at the time of the return of the committee of location some two weeks ago.

**CALIFORNIA COAL OIL.**—Coal oil is being manufactured near San Buenaventura, Santa Barbara County, from crude oil collected near that place. Upwards of 1,000 gallons have already been distilled. The best of oil can be made, according to the *Ventura Signal*, for less money than it can be laid down there from New York.



MAP OF MINES NEAR COTTONWOOD CANON.

caid's Flat; for La Grande Gravel Mining Company; for water works at Virginia City, Nev., and for various other smaller enterprises. We notice that the engineer of the Washington, D. C., aqueduct is introducing large 48-inch iron pipe of this description into the works. This style of pipe has heretofore been used only in California but its superiority over the old is evidenced by it being used in this large aqueduct. Car wheel casting, an important business, is regularly carried on, and they are now making wheels for the Central Pacific, Southern Pacific, Los Angeles, and Oregon Central Railroads. They are supplying also the various city roads here, in Sacramento and San José.

THE AETNA WORKS are over-hauling engines, and making shafting, face plates, and tools for Flint, Peabody & Co.'s, cooper shop; repairing engine and putting new shaft in steamer Enterprise; repairing engine for steamer Belle, and making six propeller wheels for Goodall & Nelson's steamers. They are also making a propeller for A. M. Simpson's steamers; a house front for W. T. Garratt, pulleys, pillow blocks, etc., for the Crown Point Mining Co. Pipe is being made for the Buckeye mine; a new 30-inch piston for Meiggs & Gauley and one of the same size for the Oneida Mining Company. They are making smelting furnaces for both the Schenectady and Pacific Mining Cos. and a large amount of miscellaneous work.

THE PACIFIC have just finished a boiler and some machinery for the Cotton mill at Colima, and are making a 20-stamp mill engine, boiler, pans, settlers, etc., for an Eastern company, to go to Monitor, Alpine county. They have on hand a boiler and some pumping apparatus for the Pocahontas Mining company, and a boiler engine and quartz mill machinery for a mine in Arizona. They have just finished a set of hoisting works for the Savage Mine, and are making a similar set for the Yellow Jacket. They are fitting up a water-wheel and machinery to go with other machinery already sent to the Japanese Government. In addition, hoisting works are being made to go with the Wilson mill, in Banner district, San Diego county, owned by Mr. McMechan. They are making a lot of pipe of different sizes, from three to sixteen inch; irons for a lot of cars for the Virginia and Truckee Railroad, and are making general repairs on several steamers.

SAN FRANCISCO BOILER WORKS have just finished two large boilers, 38 feet long, 40 inches in diameter, for the Black Diamond Coal Co., and are making a 42-inch one for Mr. Bell of Sonora. They sent a short time since two boilers to the Antioch Distillery.

McAFEE, SPIERS & Co. are building two 54-inch boilers for the State Capital, and several others of various sizes.

THE COLUMBIA FOUNDRY is engaged altogether in making house fronts.



## DOMESTIC ECONOMY.

### Hints About Cooking.

[For the Press—By a Lady Contributor.]

There are many women who are called upon to do cooking, to whom it is hard and disagreeable work. They have not been taught *how* to do it, and go to work blindly, with a desperate feeling, thinking that if they have "good luck" it will come out all right, if not, they "cannot help it." To such persons we offer the following practical hints:

There are but few cook-books that do not confuse inexperienced cooks with a multitude of receipts, and neglect of small, but important details.

That cooking for a large family is hard work, no one will deny who has tried it for any considerable length of time; but to regard good cooking as the result of *chance* is a great mistake,—an error to which we are indebted for much of the unwholesome food that is set before us. By strictly following certain rules, and being exact in quantities, we may be almost sure of success. Cooking is hard work; but by care and attention it may become interesting work, and skill and judgment may be acquired.

#### How to do it—The Fire.

In the first place, your kitchen or whatever room you cook in, your pots, pans, and all utensils should be kept in perfect order. If you have not been in the habit of keeping them so, begin at once, and see how much it lightens labor. Secondly; and this is an important consideration, you must know how to manage your fire. An ordinary cooking stove may be mastered with ease. Understand all the dampers, so that you may regulate the draught; find where the soot and ashes collect, and remove them frequently.

These seem insignificant details, but we have known stoves to be condemned as "poor bakers," by those who ought to have known better, from a neglect of these simple rules.

Have your fuel convenient, and regulate the heat according to what you have to cook. Of course we cannot lay down rules for this; but we would say that a *fiery* fire is not necessary. It wastes fuel, and spoils almost everything.

For baking bread and roasting meat a considerable amount of heat is required; while soup, hominy and many other things, must be cooked gently, for three or four hours over a slow fire. By exercising a little patience you will soon learn how to regulate your fire, and save fuel.

#### Variety in Food.

As many of our readers are in the country, we will first make a few suggestions to them.

That we should have variety in our food is necessary for health as well as enjoyment. We know that it is difficult to attain this, when far from city markets, without some forethought; but by a judicious use of fresh eggs, butter, milk and cream, with now and then a chicken, every farmer's wife may keep her family supplied with good, nourishing food.

It is desirable to have fresh meat once a day if possible; but its place may in a great measure be supplied by various grains. Many sensible people are adopting the Scotch fashion of using oat meal pudding, because they find it to be pleasant and nourishing food.

#### Oat Meal—How to Cook It.

Two cups of oat meal, three cups of cold water, salt to taste, and boil gently for two or three hours. It must be stirred frequently, and more water added if necessary to keep it soft. Cracked wheat, hominy or corn meal may be cooked in the same way, and furnish a pleasant variety.

If you have plenty of milk it will be an improvement to add a little a few moments before taking up. These dishes are nice hot or cold, and may be served with milk, syrup, or as a vegetable with meat.

#### Eggs

may be cooked in a thousand ways, our French neighbors tell us. We will not try them all, but are sure every one will like them cooked in the following manner:

Take an ordinary plate that will bear heating. Place on it a piece of butter the size of an egg and melt it. Break six eggs into the melted butter, carefully, so as not to break the yolk. On each egg sprinkle a little salt, pepper and grate a very little nutmeg. Set over a slow fire, do not cook too hard; serve hot, on the plate on which they are cooked.

#### Cheese as Food.

Good cheese is very nutritious, even more so than eggs. Cheese varies wonderfully in its composition, but when properly made it contains about one-third water, one-third albuminous material, one-fourth fat and about five per cent. of mineral matter. One-half of a pound of good cheese contains as much nitrogenous matter as a pound of the best meat, and one-third of a pound as much fat as a pound of average meat. Old cheese, however, is not wholesome, and can not be eaten in large enough quantities to be useful as a food. Very new cheese, on the other hand, is less easy of digestion.

Cheese is difficult to keep in warm climates, and easily decays in all places unless properly cared for. Mouldy and decayed cheese is unwholesome and can always be told by the taste. American cheese is not so good as English and Swiss; still the best American cheese is very good. The English working classes use bread and cheese very largely as an article of diet. The Americans use it as a relish and luxury, but rarely as an article of nourishment. We believe Americans use too much meat. Those who wish for a substitute will find it in good eggs and cheese. With these foods they need rarely or never use meat at all.—*Herald of Health.*

**FLAKY AND SHORT CRUSTS.**—In making a flaky crust, a part of the fat should be worked with the hand to a cream, and then the whole of the flour well rubbed into it, before any water or milk be added. The remaining fat must be stuck on the paste, and be rolled out. For crisp crust, by far the most wholesome, the whole of the fat should be rubbed in thoroughly, incorporated with the flour. Water or milk must be added when this is done, and the dough, or rather paste, made up. The pie-board and rolling-pin should be well dusted with flour, and the dough should be well beaten with the pin, to thoroughly mix it and render it light. Mind, in rolling out paste, do not drive the pin backward and forward, but always keep rolling from you. In making flaky crusts, the paste must be rolled out thin, and the fat or butter laid all over it; then roll it up and beat it till it puffs up in little bladders; it should be then finally rolled out, and put in the oven as quickly as possible.

**ICING PASTRY.**—When nearly baked enough, take the pastry out of the oven, and sift fine powdered sugar over it. Replace in the oven, and hold over it, till the sugar is melted, a hot iron shovel. The above method is preferred for pastry to be eaten hot; for cold, heat up the whites of two eggs well, wash over the top of the pies with a brush, and sift over this a good coating of sugar; cause it to adhere to the egg and pie-crust; trundle over it a clean brush, dipped in water, till the sugar is all moistened. Bake again for about ten minutes.

**EAST INDIA PICKLE.**—Chop cabbage fine, leaving out the stalks, together with three or four onions, a root of horse-radish and a couple of green peppers to each cabbage. Soak the whole in salt and water for three or four days. Spice some vinegar with very strong mace, cloves, allspice and cinnamon. Heat it scalding hot. Add alum and salt, and turn it on the chopped pickles, which should previously have all the brine drained from them. In the course of three or four weeks the pickles will be fit for use.

**HOW TO EAT CORN.**—The operation of eating corn from the cob is much facilitated by drawing a sharp knife lengthwise of each row, in such a manner that the hull of each kernel will be split. When this is done the digestible nutritious contents of the kernels will slip out and the often tough hull be left upon the cob. Those whose teeth are sensitive or defective will find this a great help.

**TO KEEP FRUIT.**—The *Journal of Chemistry* has the following: Beat together equal measures of honey and spring water in an earthen vessel; put in your apricots, plums and peaches, freshly gathered; cover closely, and they will keep fresh for a year. When taken out for use they must be rinsed in cold water.

### Domestic Receipts.

**PUMPKIN PRESERVES.**—Cut a nice ripe pumpkin into pieces a third of an inch thick, paring them. Take equal weight in white sugar. Allow the juice of one lemon to a pound of pumpkin. Let the pumpkin remain in a pan with the sugar and juice all night. In the morning put into a preserving kettle, cooking till perfectly clear. Be sure to skim well. Then add lemon peel cut in pieces small as marbles. Take out and strain the syrup through a jelly-bag, and pour over the pumpkin.

**QUINCES DONE IN MOLASSES.**—Pare and quarter them, holling the skins and cores in new cider, and straining them. To five pounds of quince use one of brown sugar, one quart of molasses, and the cider in which you boiled the skins. Add the whites of two eggs, and clarify. When cool, add the quinces, and holl till tender, adding more cider if necessary. Spice with orange peel or ginger root.

**TO KEEP EGGS.**—Among the various methods proposed, none perhaps is better than the following:—Fill a kettle with water, and let it boil. Then fill a corn popper or something similar, with eggs, and immerse them in the water, now holding them in more than a second. Pack them in bran or paper rags, little end down, and they will be good when hens lay in the Spring. I have tried it three seasons, and never failed in laying down fresh eggs.

**GREEN TOMATO PICKLE.**—One peck of green tomatoes, one dozen onions. Slice and put in layers, with salt sprinkled over them, and let them stand until the next day, and then drain off the liquid. One hox of mustard (two gills), one and a half ounces of ground black pepper, one ounce of whole cloves, one ounce of yellow mustard seed, one ounce of allspice. Put the pickle in a kettle in layers with the spice and add vinegar enough to cover up all, first wetting the mustard, and let the whole boil twenty minutes. The same recipe is excellent made with half tomatoes and half green peppers, and when done and perfectly cold, one gill of olive oil.

**FRIED BREAD.**—Put into a common biscuit pan a heaping teaspoonful of butter, and let it melt and spread over the pan; then take enough slices of bread (stale answer as well as any) to cover the bottom of the pan, and make a mixture to dip them in by beating well with two eggs, and pouring in milk enough to soak the bread, season it with a little pepper and salt; make the bread quite moist; then lay it on the butter and fry brown one side, and if too soft to turn, put it into the oven to brown on the top, and you will have a dish that serves for meat and potatoes, consisting of neither.

### Mechanical Hints.

**HOW TO SELECT HINGES.**—The following simple method of selecting right from left-handed, loose jointed butts or hinges, may be useful to many, as it has often saved considerable trouble and annoyance in sending inexperienced persons to the stores for such articles: Take up the closed hinge from the counter and open it from you, holding it in both hands; if you wish for right-handed ones hold fast with the right hand, letting go with the left. If the hinge remain intact it is right-handed, but if it fall to pieces, or apart, it is left-handed. Holding fast with the left and letting go with the right, will prove which is which, by a similar test. I have seen many a score of people puzzled to tell one hinge from another, until I showed them the above simple plan, when it was a mystery no longer.

**RUST.**—Sometimes rust can be removed from polished iron or steel with little difficulty; but sometimes it cannot be made to disappear without polishing the surface anew. Rust is oxide of iron. The oxygen of the atmosphere unites with the iron chemically, thus forming a thin scale on the surface, not one-thousandth part of an inch in thickness. Red rust may be formed on the polished surface a thousand times without materially corroding the metal, provided it be removed soon after it has formed. The usual manner of removing red rust is to cover the rusty portion with common olive oil, and rub it in well with a woolen cloth. After it has stood a few hours, rub the parts with finely pulverized slacked lime, or Spanish whiting, until the rust is all removed. If red rust is allowed to accumulate until the polished surface is corroded, sweet oil and a severe rubbing will seldom remove it. The entire surface must be re-polished with emery, or some other grit, before black rust will disappear from polished steel or any other metal.

## LIFE THOUGHTS.

GIVE work rather than alms to the poor. The former drives out indolence, the latter industry.

POETRY is the flower of thought; sarcasm the needle; wit, the honey; and punning the small beer.

DESPISE not little sins, that have ruined many a soul. Despise not the little duties; they have been to many good discipline.

WE should watch over the interests of others as well as our own, and be careful to act on every occasion, with uprightness and fidelity.

BE not stingy of kind words and pleasing acts, for such are fragrant gifts, whose perfume will gladden the heart and sweeten the life of all who hear or receive them.

Does a man speak foolishly? Suffer him gladly, for you are wise. Does he speak erroneously? Stop such a man's mouth with sound words that cannot be gained. Does he speak truly? Rejoice in the truth.

MEMORY presides over the past; action presides over the present. The first is a rich temple hung with glorious trophies and lined with tombs; the other has no shrine but duty, and it walks the earth like a spirit.

THE same vanity which leads us to assign our misfortune or conduct to others, prompts us to attribute all lucky chances to our own talent, prudence and forethought.

If you want to find out a man's real disposition, take him when he is wet and hungry. If he is amiable then, dry him and fill him up, and you've got the greatest wonder of the century.

A Good man who has seen much of the world and is not tired of it says: "The grand essentials to happiness are something to do, something to love, and something to hope for."

EDUCATION is a better safe guard of liberty than a standing army. If we renege the wages of the school-master, we must raise those of the recruiting sergeant.—*Everett.*

### Who is Old.

A wise man will never rust out. As long as he can move or breathe he will be doing for himself, for his neighbor, or for posterity. Almost to the last hour of his life, Washington was at work, so were Young and Howard and Newton. The vigor of their lives never decayed. No rust marred their spirits. It is a foolish idea to suppose that we must lie down and die because we are old. Who is old? Not the man of energy, not the day laborer in science, art or benevolence; but he only who suffers his energies to waste away and the springs of life to become motionless; on whose hands the hours drag heavily, and to whom all things wear the garb of gloom. If he old, should not be asked; but is he active?—can he breathe freely and move with agility? There are scores of gray-headed men we should prefer, in any important enterprise to those young men who fear and tremble at approaching shadows, and turn pale at a lion in their path, at a harsh word or a frown.

**FORMATION OF CHARACTER.**—Have you noticed an icicle how it froze one drop at a time, until it was a foot long or more. If the water was muddy, the icicle looked foul and its beauty was spoiled. Just so our characters are forming. One little thought or feeling at a time adds influence. If thought be pure and right, the soul will be lovely, and will sparkle with happiness, but if impure and wrong, there will be final deformity and wretchedness.

**SECRET SORROWS.**—In the lives of the saddest of us there are bright days when we feel as if we could take the great world in our arms. Then come gloomy hours, when the fire will not burn on our hearths, and all without and within is dismal, cold and dark. Believe me every heart has its secret sorrows, which the world knows not of, and oftentimes we call a man a cold man, when he is only sad.—*Longfellow.*

BLESSED is the man who never runs in debt. Better deny yourself than to meet a man who looks at you every time he meets you with a countenance that says "Pay me what you owe me, sir." He is a happy man who can face the world and say "I owe you not a cent."

LET us never meddle with strife, if we can help it, and let us have as little to do as we can with the angry and furious, but let us always stand by the right, and let our silence, if not words, rebuke all wrong-doers.



## Business Cards.

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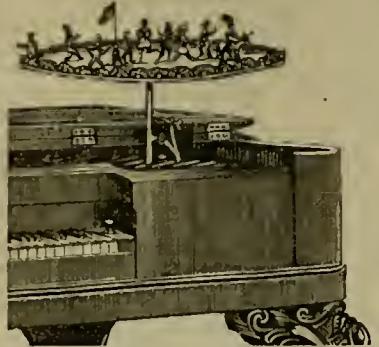
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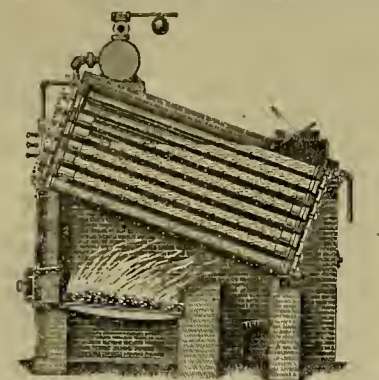
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process, rejecting fully 1/2  
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down without fear of explosion  
or fire. The Fire Underwriters of N. Y. recommend its use  
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place where not for sale. 8v23-4f

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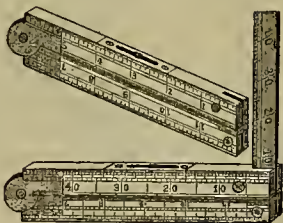
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## Travelers' Guide.

**CENTRAL PACIFIC RAILROAD.**

Pass'ger	Express	October 2,	Express	Pass'ger
Sunday	Train	Daily	Sunday	excepted
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.
4:40 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:58 P.M.
5:30 P.M.	7:30 A.M.	San Jose	5:30 P.M.	12:15 P.M.
8:25 P.M.	12:25 P.M.	Stockton	1:25 P.M.	7:30 P.M.
10:30 P.M.	2:10 P.M.	Sacramento	11:45 A.M.	6:00 A.M.
	4:10 P.M.	Marysville	9:10 A.M.	
	7:50 P.M.	Sesma	8:40 A.M.	
	2:30 P.M.	Sacramento	11:45 A.M.	
	5:25 P.M.	Colfax	8:45 A.M.	
	1:15 A.M.	Reno	1:00 A.M.	
	9:10 A.M.	Winnemucca	4:05 P.M.	
	12:00 P.M.	Battle Mountain	1:25 P.M.	
	4:40 P.M.	Elko	8:45 A.M.	
	6:00 A.M.	Ogden	5:20 P.M.	

**SAN JOSE BRANCH.**—Leave San Francisco at 9:10 a.  
m. daily (except Sundays), and 3 p. m. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:30 p. m., daily  
(except Sundays).

**OAKLAND BRANCH.**—Leave San Francisco, 6:50,  
8:10, 9:10, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).

**LEAVE BROOKLYN.** 5:15, 6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.

**LEAVE OAKLAND.** 5:25, 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.

**ALAMEDA BRANCH.**—Leave San Francisco, 7:20, 8:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruit Vale only).

**LEAVE HAYWARD.** 4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
Leave Fruit Vale, 5:25, 7:55, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.

\*Sundays excepted.

**CALIFORNIA PACIFIC RAILROAD.**

4.00 P M	8.00 A M	San Francisco	11.30 A M	7.30 P M
5.50 P M	9.45 A M	Vallejo	9.45 A M	5.45 P M
8.00 P M	12.45 P M	Calistoga	7.30 A M	2.45 P M
9.30 P M	2.15 P M	Marysville	6.30 A M	1.00 P M
8.15 P M	12.15 P M	Sacramento	7.30 A M	3.30 P M

Only one train Sundays—leaving San Francisco 9.30 A. M.,  
Calistoga 3 P. M., Marysville 10.15 A. M., and Sacramento  
2.45 P. M.

Only one train Sundays—leaving San Francisco 8:30 A. M.,  
Calistoga 3 P. M., Marysville 10:15 A. M., and Sacramento  
2:45 P. M.

**SAN FRANCISCO & N. PACIFIC R. R.**

5:15 P.M.	San Francisco	11:00 A.M.
5:00 P.M.	Donahue	8:45 A.M.
5:00 P.M.	Petaluma	8:20 A.M.
5:58 P.M.	Santa Rosa	7:30 A.M.
6:45 P.M.	Healdsburg	6:45 A.M.

\*Sundays excepted.

**CAL. P. R. R. CO.'S STEAMERS.**

2.00 A M	2.00 A M	Stockton	4.30 P M
		Sacramento	12.00 M.

\*Sundays excepted.

\*Sundays excepted.

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construction of cars for the comfort and safety of passen-  
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**FULLMAN'S MOST MAGNIFICENT PALACE SLEEP-  
ING CARS** attached to express trains.

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## PARASITIC WORMS IN THE WIND-PIPE OF FARM STOCK.

Some time since we published a letter from a gentleman, who complained that his young cattle were dying, and that the apparent cause of death was found in some small worms, which occupied the air passages of each one of the victims. Our correspondent wished to know what the worm was, and what he could do to prevent its ravages. We think that we can now answer his questions, although we fear not quite to his satisfaction, as but little encouragement can be given to those who have cattle infected with these parasites, and hope to cure them.

The worm is probably the same species that has been causing serious mischief among the herds of New York during the past season. Many young cattle have died there with the symptoms of pneumonia, at a time of the year when that disease was not to be expected. A *post-mortem* examination showed, as in the case of the cattle belonging to our correspondent, that the inflammation of the air passages was caused by parasitic worms. Some of the worms were preserved in alcohol, and sent for examination to Prof. A. E. Verrill of the Sheffield Scientific School of Yale College. We were in New Haven at the time, and the Professor showed us the specimens, which appeared much like bits of horse-hair, an inch or so in length.

Prof. Verrill is an enthusiast in Zoology, and has spent much time in studying animal parasites. Probably there is no other man in America that understands the subject so well. In 1870 he delivered a course of lectures before the Connecticut Board of Agriculture which were published in the report of that body, and also in pamphlet form, under the title of "The External and Internal Parasites of Man and Domestic Animals."

The Worm Under Discussion is known among scientific men by the name of *Strongylus micrurus*, and is but one of several closely related species coming under the genus *Strongylus*, as will be seen from the following descriptions which are taken in an abbreviated form from the work mentioned above, as is also our figure, which represents the species known as *S. Filaria*.

### Strongylus.

The genus *Strongylus* includes slender, filiform worms, mostly of small size, and often reddish in color. Several of them live in the windpipe and bronchial tubes of various animals, including sheep, deer, cattle, pigs, etc., and when numerous may occasion the death of the animals that they infest, by suffocation.

The body generally tapers toward the head, and sometimes in both directions. The mouth is small, situated at the end of the small head, which is either simple or with lateral expansions. It is sometimes surrounded by small papillae, but is often simple, and either round or triangular, but not enclosed by a hard organ as in some other worms. The oesophagus is enlarged, club-shaped, and muscular.

The male has the posterior portion of the body expanded. (See figure)

### The Strongylus of Sheep.

*Strongylus Filaria Rudolphi*. The present species is whitish, very long and slender. The head is obtuse and without appendages, the mouth surrounded by three small papillae. The caudal pouch of the male is entire, with ten rays. (See figure).

The male is about two and a half inches long, the female sometimes three and a half, though generally not more than two or three inches long. The interior of the body of the female is mostly occupied by two long, convoluted tubes, containing eggs in which the embryos are in all stages of development.

### Habits.

This species live in the lungs, air-passages, and bronchial tubes of sheep and other ruminants. They often occur singly or several together, in cavities in the substance of the lungs, producing great inflammation and destruction of the tissue, which often results in the death of a great number of lambs, and greatly injures the health of old sheep, even if it does not actually kill them.

In this way many thousands of lambs are annually lost in England. In this country we have far less information concerning its ravages, but have no reason to suppose that it is less common than in Europe, in localities that are favorable to its development. Sheep infested by this parasite continually cough up the eggs and embryos of the worms. These often adhere to grass or other herbage and may thus be swallowed by other sheep or lambs, and pass directly into the windpipe, or else do so when the cud is raised for mastication. Therefore lambs should never be put into fields or pastures where diseased animals have been kept, but such infected lands should be tilled, or at least left at rest for several months. As soon as an animal gives any indication of the presence of the parasites, by the peculiar cough, it should be separated from the rest of the flock for treatment, or else immediately killed, and the parasites should be destroyed, and not thrown on the ground as harmless, for all these worms are remarkably tenacious of life, and often may even be dried up completely for months, and then revive when moistened.

### Remedies.

When these parasites are once lodged, in numbers, in the substance of the lungs, there is probably no reliable remedy whatever. When merely in the windpipe and bronchial tubes, expectorant medicines that will produce a copious secretion of mucous may be useful. It might be possible to remove them by a surgical operation, opening the windpipe from the exterior, but this would require surgical skill, and would not pay, perhaps, except as a last resort for valuable animals.



The *Strongylus* of Cattle and Horses. (*Strongylus Micrurus Melhis*.)

This species closely resemble the preceding. The male grows to the length of about one inch and a half, and the female to three inches or a little more. The body is very slender with a simple, blunt head. The caudal pouch of the male has five rays (an important characteristic for distinguishing from *S. Filaria*). It is said to be viviparous.

The habits of this species are nearly the same as those of the last, except that this inhabits the air-passages of cattle, horses, asses, and mules, instead of sheep. It is

much more liable, like the former, to infect young animals than adults. Calves less than a year old are particularly liable to be invaded, and those that are once attacked seldom or never recover. The same remarks, concerning the means of prevention, made under the preceding species, will apply equally to this. If neglected, these parasites increase with great rapidity, and thus the disease which they cause appears like an epidemic, in certain localities destroying hundreds or thousands of animals, while adjacent farms may be entirely free from it.

The Professor goes on to describe four other species of *Strongylus*, one of which inhabits the air-passages of the hog, another the intestines of the same animal, two, the intestines of sheep, and one, the intestines of cattle.

The whole subject of animal parasites is of the greatest importance, and too little understood by farmers and physicians. We hope that our readers will make notes of such cases as may come under their observation, and report to us, with full particulars as to modes of occurrence, amount of mischief, etc. We should be glad to receive alcoholic specimens, securely put up in small bottles, as we have facilities for having them identified in most cases. Some common and destructive parasites are easily destroyed, and we shall be glad to give such information as may be within our reach.

FARMERS' CREDIT.—The Sacramento Savings Bank has loaned \$118,000 on Solano and Yolo farming lands.

## NOTICES OF RECENT PATENTS.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

PRUNING SHEARS.—John F. Creighton, Placerville, Cal. This invention relates to that class of pruning and picking shears, in which a spring or yielding holder is employed in connection with the shears for the purpose of seizing the severed limb or twig and preventing it from falling to the ground after it is cut off. The improvement consists in the employment of a supplementary punching tool, which is secured to one side of the shears so that it will be operated in unison with the cutting jaws of the shears and by the shear handles, so as to pinch or grasp the secured twig or limb at the same time that the shear blades cut it.

IMPROVEMENT IN THE CONSTRUCTION OF VESSELS.—Adam Wingard, S. F., Cal. The object of this invention is to provide certain improvements in the construction of the hulls of sea-going and river vessels in order to admit of their attaining a high rate of speed, and at the same time preserve the harmony of outline, with great carrying capacity.

The scow or flat bottom is employed to give the advantage of a high rate of speed, and the defects of this construction are remedied by a peculiar construction of the stem and stern which are formed into two cutwaters or prows, and two sterns so that with great width, fine lines are preserved where the vessel enters and leaves the water.

REVOLVING DIE FOR CUTTING SCREWS.—John Carroll, Oakland, Cal., assignor to self and Chas. Wilkinson of same place.

The object of this invention is to provide a die for cutting screws, which by being made revolving in a case, can be instantly adjusted for any one of a series of different sizes, such as are used for gas-fitting, for which the invention will be found particularly applicable. The device consists of a hollow case of metal, in the form of a short cylinder, having two sockets for levers in opposite sides; within this case is a short hollow steel cylinder, the sides of which are pierced with as many holes as are convenient for the introduction of different sizes of pipe, and these holes serve as guides to the dies for each size, which are situated opposite to their respective openings, and are formed in the same cylinder. Holes are made through the outer case, and any sized die can be brought opposite the holes for use. For the two largest sizes, the dies are placed in the axis of the die cylinder, and have suitable guides.

### New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

GOLDEN CHARIOT GRAVEL MINING CO.—Trustees: U. P. Sheldon, H. H. Welch and H. P. Burnham. Capital stock, \$1,200,000 in 24,000 shares.

SAN JUAN DEL RIO MINING CO.—Capital stock, \$4,800,000 in 48,000 shares. Trustees: J. W. Dwinelle, E. L. Gould, J. O. Farrell, C. W. Cook and J. E. Magee.

MEADOW VALLEY EAST EXTENSION MINING CO. Capital stock, \$3,500,000 in 35,000 shares. Trustees: D. W. Connelly, M. Skelly, O. Hoffman, W. Burling and F. L. A. Pioche.

ELY CONS. MINING CO.—Capital stock, \$3,500,000 in 35,000 shares. Trustees: D. W. Connelly, H. A. Lyons, M. Skelly, C. D. O'Sullivan and O. Hoffman.

FROM BANTA'S TO ANTIOCH.—The C. P. R. R. Company have entered in earnest upon building a railroad from Banta's Station to Antioch City. A contract has already been let for grading the first fifty miles of the distance. This road is to run by the way of the Antioch and Martinez to Oakland, over which the company will carry their freight and perhaps passengers also and thus avoid the heavy grade of the Livermore Pass. That portion of it from Martinez to Oakland will answer for the continuation of the California Pacific when the Straits of Carquinez shall be bridged or a ferry used to carry the overland people by the short route direct to Oakland, or it may be to San Francisco when the Bay shall be bridged also—as it will doubtless be in time. The distance from Oakland to Banta's is about the same as per Livermore Pass, while it can be run much quicker and operated at far less cost.

## AN INVENTOR'S OPINION.

SACRAMENTO, Oct. 7, 1871.—Messrs. DEWEY & Co.—Dear Sirs: My patent for casting Aluminum Dental Plates came duly to hand. It seems to me to be complete in all its parts. In view of the fact that there are already about five patents for casting this metal into Dental Plates, I think the case has been well handled. For this and for your forbearance in my over anxiety, receive my hearty thanks. F. M. SHIELDS.

AN EXTENDED POPULARITY.—"BROWN'S BRONCHIAL TROCHES" have been before the public many years. Each year finds them in new localities in various parts of the world. The Troches are pronounced universally superior to all other articles used for similar purposes. For relieving Coughs, Colds, and Throat Diseases, the Troches have been proved reliable.

## ACTIVE MEN!

With Experience in Canvassing business, can now obtain lucrative and permanent employment by DEWEY & CO., Patent Agents and Publishers of the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS, No. 414 Clay street, S. F.

## A Novelty Printing Press for Sale.

It is a new foot-power Press, and just the thing for a small country job office or for amateur printers, and druggists and others who wish to do their own printing. At manufacturers' price, with freight added. Enquire at this office. 11/24tr-lams

## Store or Shop Room to Let IN GRAND HOTEL.

Also, a BASEMENT. Inquire at 17 New Montgomery street. WIESTER & CO.

## Longshore's Combination Tool.



This device is just what its name indicates. As a KITCHEN TOOL it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

### WIESTER & CO.,

17 New Montgomery street (Grand Hotel), SAN FRANCISCO.

## AMMONIACAL PREPARATION

—FOR THE—

## Prevention and Removal of Boiler Scale.

MANUFACTURED BY THE

San Francisco Gas Company.

F. I. CURRY, Sole Agent, San Francisco Boiler Works, 123 and 125 Beale street, San Francisco.

This Preparation is proved by the experience of many of our best machinists and engineers to be a perfect cure for the vexatious and dangerous incrustation known as Boiler Scale. It is sold in 5-gallon cans at \$5.25 per can, or in case of two cans each at \$10.50 per case.

The San Francisco Gas Company also manufactures

Carbonate of Ammonia.

Muriate of Ammonia.

Sulphate of Ammonia.

Liquor Ammonia, Concentrated.

Aqua Ammonia, F. F. F.

Concentrated Crude Ammonia, for Ice Making and other manufacturing purposes.

9v23-3m

## The California Powder Works

No. 314 CALIFORNIA STREET.

SAN FRANCISCO.

Manufacturers and have constantly on hand

## SPORTING,

## MINING,

## And BLASTING

## POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market. We have been awarded successively

## Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

## HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING powder, thus making it vastly superior to any other powder now in use.

A circular containing a full description of this Powder can be obtained on application to our Office. 16v20-3m JOHN F. LOISE, Secretary.



Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Bellevue Mining Company—Location of works, Ophir District, Placer County, California.

Notice. There are delinquent upon the following described stock, on account of assessment levied on the 13th day of August, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	No. Shares.	Am't.
W P C Stebbins.....	31	25	\$25 00
Henry Baker.....	17	25	25 00
Henry Baker.....	18	944	944 00
Theodore E Baugh.....	37	100	100 00
Theodore E Baugh.....	38	100	100 00
Theodore E Baugh.....	39	100	100 00
Theodore E Baugh.....	40	100	100 00
Theodore E Baugh.....	42	100	100 00
Theodore E Baugh.....	43	44	44 00
A C Peachy.....	56	100	100 00
A C Peachy.....	57	100	100 00
A C Peachy.....	58	100	100 00
A C Peachy.....	59	100	100 00
A C Peachy.....	60	100	100 00
A C Peachy.....	61	100	100 00
A C Peachy.....	62	100	100 00
A C Peachy.....	63	100	100 00
A C Peachy.....	64	100	100 00
A C Peachy.....	65	101	101 00
John McFaddin.....	11	50	50 00
John McFaddin.....	10	100	100 00
John McFaddin.....	22	25	25 00
John McFaddin.....	16	25	25 00
W H V Cronise.....	74	60	50 00

And in accordance with law, and an order of the Board of Trustees, made on the 13th day of August, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 409 California street, San Francisco, Cal., on the 23d day of October, 1871, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, 409 California street (up stairs), San Francisco, Cal. oct-13w

Highland Silver Mining Company—Location of works, Railroad District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of October, 1871, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said company, payable immediately, in United States coin, to the Secretary, at No. 28, Merchants' Exchange, San Francisco, California. Any stock upon which said assessment remains unpaid on the 13th day of November, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. oct-14w

Kincaid Flat Mining Company—Location of works, Toiyabe County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of October, 1871, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, at No. 28, Merchants' Exchange, San Francisco, California. Any stock upon which said assessment remains unpaid on the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, 220 Clay street, San Francisco. oct-14w

Nevada Land and Mining Company—Location of works, Spruce Mountain, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of October, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Saturday, the 11th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. oct-14w

Noonday Silver Mining Company—Location of works, White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of October, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary of the company, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. oct-14w

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the fourth (4th) day of September, A. D. 1871, an assessment (No. 1) of one dollar and twenty-five cents per share was levied on the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 418 California street, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 8th day of October, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. oct-14w

POSTPONEMENT.—The day for deemed stock delinquent on the above assessment is hereby postponed until Thursday, the 9th day of November, A. D. 1871, and the sale thereof, until Friday, the 10th day of December, A. D. 1871. By order of the Board of Trustees.

Office, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. oct-14w

Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, Cal.

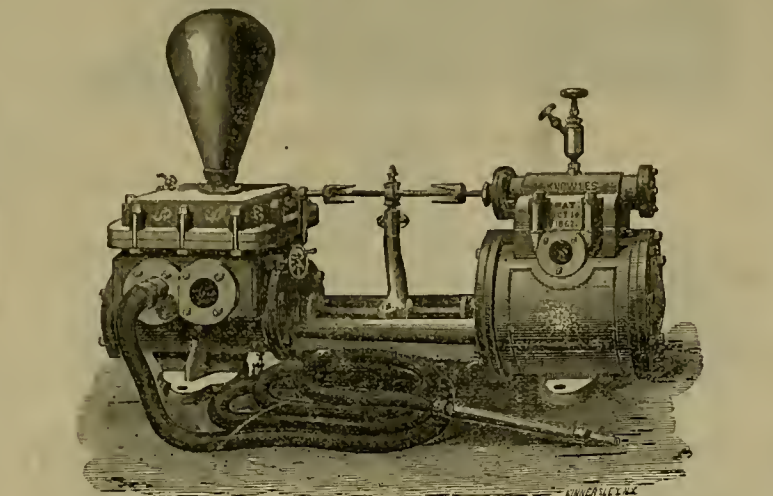
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of September, 1871, an assessment of three dollars (\$3) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 28th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, Room No. 26, 419 California street, San Francisco, California. oct-23-1d

KNOWLES' PATENT STEAM PUMP.

Awarded First Premium and Diploma

Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Premium and Diploma at State Fair, and Gold Medal Recommended.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, Cal., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road for fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly, A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, Oregon, April 22, 1871.

Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.

Yours respectfully, G. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly, C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.

Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly, GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, New York, June 3, 1871.

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully, WM. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDAUQUA, Pa., June 1, 1871.

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc., EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., HELLENSTOWN, Northampton County, Pa., May 26, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.

Yours very respectfully, G. W. WHITAKER, President and Superintendent.

OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly, P. SAULT, Superintendent.

OFFICE OF RED BLUFF WATER WORKS, Red Bluff, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc., JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

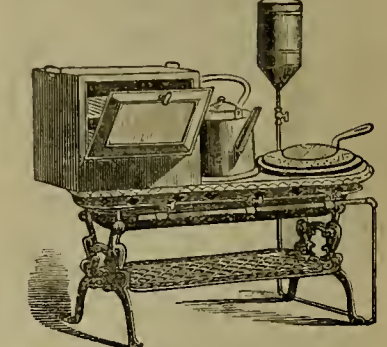
A. L. FISH, Agent.  
No 9 First Street, San Francisco, Cal.  
P. S.—All kinds of new and second-hand Machines on hand. 24v22-cow

Silver Sprout Mining Company—Location of works and mine, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No 318 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, No. 318 California street, San Francisco. Rooms Nos. 1 and 2, second floor. oct-14w

THE IMPROVED AMERICAN VAPOR STOVE.



No Wood, Coal, Smoke, Ashes, Stovepipe nor Chimneys, and Perfectly Safe, Economy and Convenience combined.

WILLIAM FRIEL, Manufacturer,  
No. 69 and 71 Fourth street, S. F.

All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasoline and Patent Oil for Stoves and Lamps for sale. Court Rights for sale. 10v23-3m



Under a Burning Sun, where Bilious affections and Fevers of various descriptions so generally prevail,

Tarrant's Effervescent Seltzer Aperient has been successful beyond all parallel. Hence the physicians of the tropics give it their emphatic sanction, prescribing it in preference to every other aperient in use. The patients, of course, gladly acquiesce, for this preparation is one of the most delightful, as well as mild and cooling cathartics, chemistry has yet devised, and possesses every medical virtue of the far-famed German Seltzer Spa. It is a powder that only requires the addition of water to produce in an instant a delicious effervescent beverage, as well as an invaluable medicine. Ask for and accept none but the genuine.

SOLD BY ALL DRUGGISTS.



SANBORN & BYRNES, BUILDERS



South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly at ended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners Billiard Balls and Ten Pins. Fancy Newels and Balusters. 21v22-6m.

OCCIDENTAL Insurance Company OF SAN FRANCISCO.

ash Capital, . . . . . \$300,000

GOLD COIN

OFFICE, 136 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. ROTHSCHILD, Secretary. 20v17

Wanted.

We desire to make arrangements with a reliable man to act as general agent for Oregon and Washington Territories, to sell a new and saleable article.

WIESTER & CO., 17 New Montgomery st., S. F.



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

## Steam Engines and Boilers,

MARINE AND STATIONARY,

## IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. E. Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.  
18720-3m  
GODDARD & CO.

## FULTON

## Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

## STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-47

## GEORGE T. PRACY,

## MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.



These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say—

## STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY,

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

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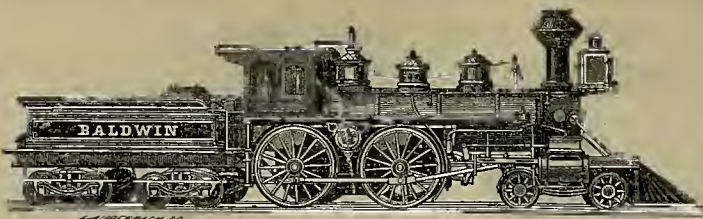
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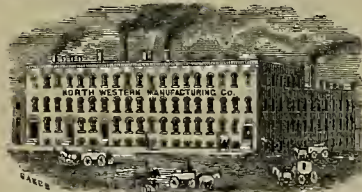
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This Mill is Greatly Superior to the

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## RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

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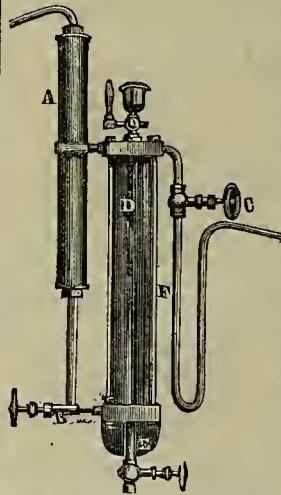
by the cry of "Humbly," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

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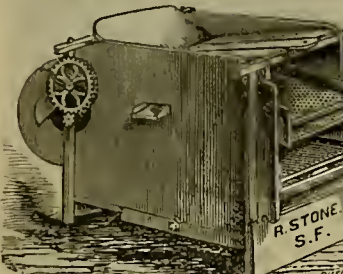
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It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

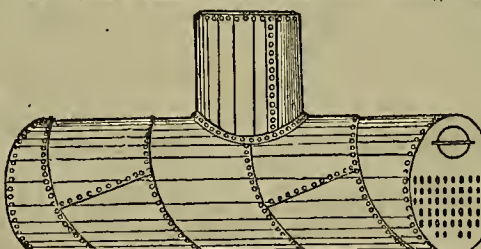
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This Amalgamator Operates as Follows.

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Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

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**Silver-Plated Amalgamating Plates**  
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CELEBRATED

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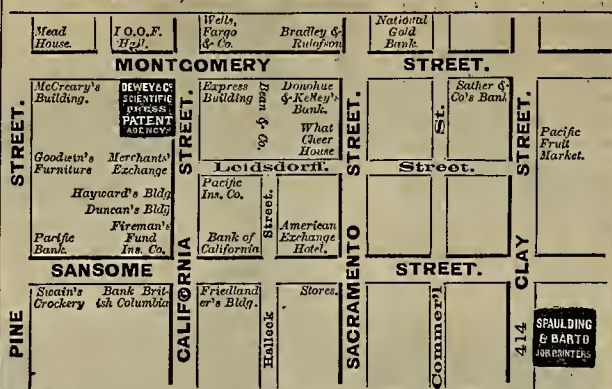
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OFFICE REMOVED, OCTOBER, 1871.

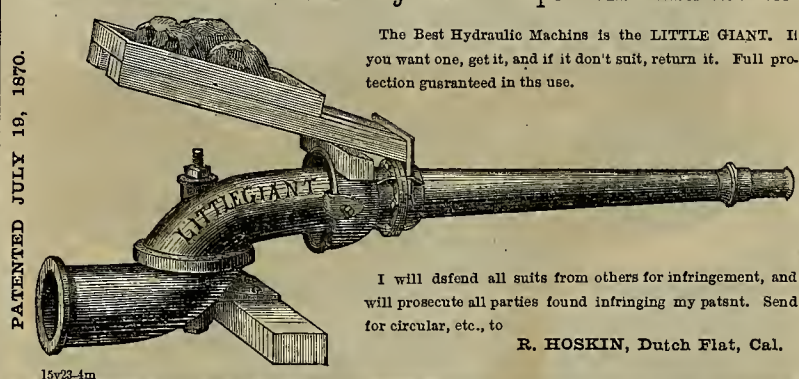
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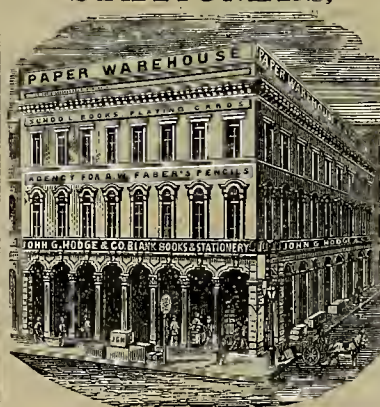
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**Mining, Mechanic Arts and Inventions.**

BY DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, OCTOBER 28, 1871.

VOLUME XXIII.  
Number 17.

## Mining Map of Utah.

We present, to-day, for the benefit of our numerous readers in the mining sections a map of Salt Lake and vicinity, with the dimensions and location of twenty-eight different organized mining districts, steamboat and railroad routes, creeks and rivers, compiled from Froiseth's map, which was made up from the latest United States Surveys and other authentic sources. This map is a very comprehensive one, showing as it does the location of so many mining districts, and will be found convenient for reference in connection with our "mining summary," from week to week, and the numerous paragraphs going the rounds of the press concerning the wonderful extent and richness of the deposits found in the different sections here depicted.

The vast mineral resources of Utah Territory, which are now being developed and which may be said to be yet only in their infancy, are even now world-famous. Gold, silver, argentiferous galena, quicksilver, copper and manganese have already been discovered; the deposits of galena equalling, if not surpassing, anything ever before found. The attention of English as well as home capitalists have been called to these mines, and even now the statistics of the amount of bullion shipped from these districts at such an early stage of their development are such as to astonish us. The business of mining, far from being on the wane among the States and Territories of the Pacific Coast, is just beginning to be considered a legitimate investment, and one which will be permanent.

**SUIT FOR MINING GROUND IN ARIZONA.**—An action has been brought in the 4th District Court against E. J. Cooke and the Tiger Silver Mining Co., in Yavapai County, Arizona, by Wm. B. Fleeson. The complaint alleges that the plaintiff and H. M. Curry entered into partnership in 1869, and that Curry was to go prospecting while Fleeson provided the outfit, all interests to be equally divided. Curry after receiving \$290 went to Arizona and located with other parties, 1,200 feet of ground known as the Tiger lode. Curry acquired 240 feet but conveyed only 62½ feet to plaintiff, and afterwards, without consideration deeded to E. J. Cooke all his interest, including 57½ feet belonging to plaintiff. Cooke conveyed this interest to the Tiger Silver Mining Co. Fleeson demands judgment for 1,150 shares of stock, which is worth now about \$5 per share.

**TELEGRAPHIC EXTENSION TO PIOCHE.**—The Deseret Telegraph company have extended their lines to Pioche City, connecting at Salt Lake City with the Western Union Telegraph Company, placing the Eastern Nevada mining districts in communication with San Francisco.

**ELEVEN** hundred tons of borax are consumed in the world annually.

## Important Mining Suit.

An important mining suit has been brought in the Twelfth District Court by Wm. H. Sears against the Pioche Silver Mining Co. The complaint alleges that the plaintiff was, and still is, the owner of

alleged that the company obtained \$20,000 from the mine. Plaintiff says Sanderson has given him the right of action against the defendant to recover this sum, Kitterman, the original owner, sold to Sanderson on the 6th of September. In 1864 the defendants entered upon this ground to the

## Tin in Utah.

If reports from Salt Lake are correct, the tin mines at Ogden are likely to prove extensive and profitable. It is said that the ore in the Star of the West—the pioneer discovery—will average twenty-five per cent. in tin. As we are totally dependent on Europe for our supplies of this useful article, the discovery of these mines is of the utmost importance. The principal tin mines in the world are in Cornwall, England, which have been worked uninterruptedly from the earliest historic periods. The metal is found in small quantities in Spain, Saxony, Austria, Siberia, France, Bohemia, Australia, Burmah, Madagascar, Mexico, the island of Borneo, in Southern Asia, and in several of the South American States. In the United States very little has been found, and that in Massachusetts, New Hampshire, New York, Virginia, and New Jersey. It has also been discovered in several different localities in the southern portion of California, but the deposits are limited in extent and value, and the production never exceeded, as far as we know, more than a few specimen bars. The extensive deposits of ore said to have been found in Utah will make a great difference in the consumption of this article and will revolutionize the entire trade. One of the claims taken up is said to have been bonded on mere prospective profit for the sum of \$200,000, a fact that speaks for itself in connection with the value of the discovery.

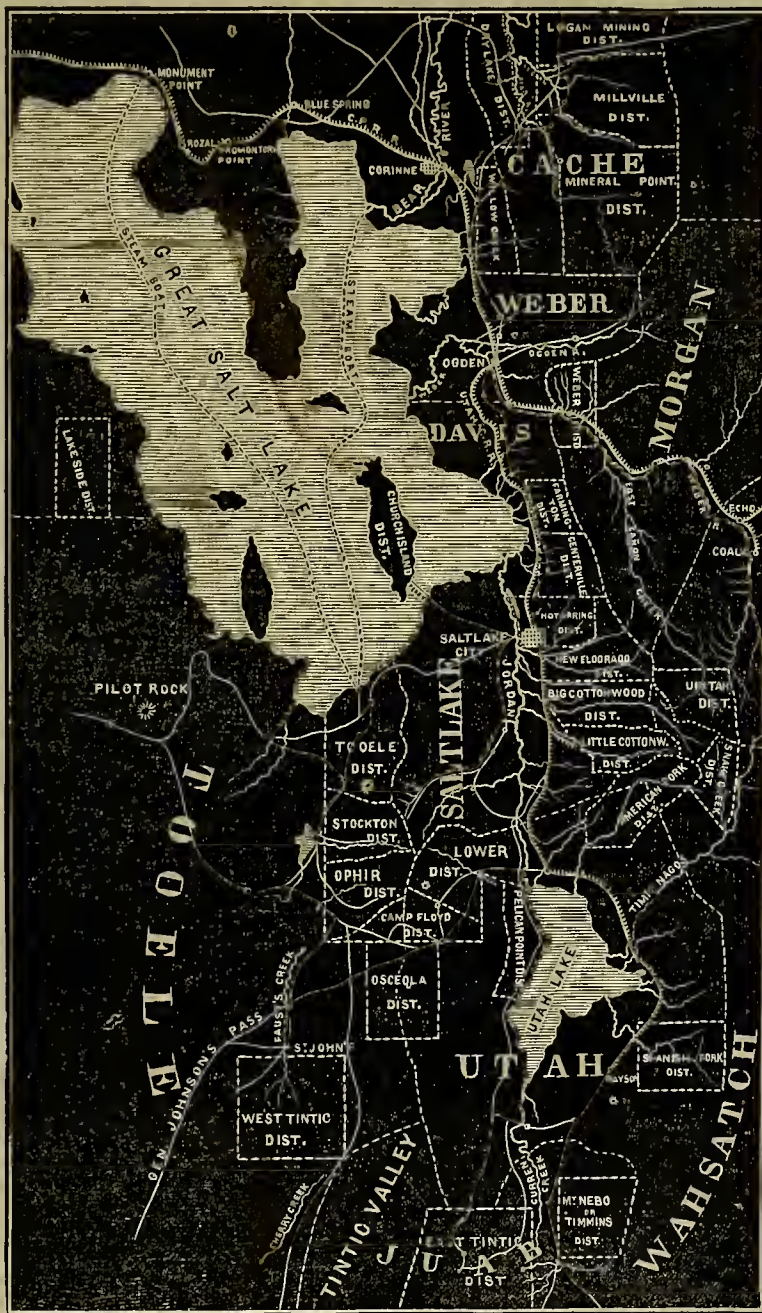
If the mines in question are as rich and extensive as they are said to be, we may expect to see some early developments, which will not only be productive of a rich harvest to the owners but to the general public.

**WIRE SILVER.**—We were shown to-day, some fine specimens of wire silver from the Bellevue mine, Placer county. The existence of wire silver in gold-bearing quartz in this country is something unusual and peculiar as well as interesting. The mine itself is achieving an enviable reputation.

**RALESTONITE** is the name of a new mineral recently discovered in Greenland. The crystals are octahedral, and are often colorless, sometimes approximating to whiteness; hardness, 4.5; specific gravity, 2.4. It is a hydrous fluoride of aluminum, characterized by distinct traces of calcium and soda.

The evidence of the spectroscope, as it stands, is certainly favorable to the idea that the constitution of the sun is not very different from that of the earth; a vast series of observations are required before this can be determined.

**NOTICE TO AGENT.**—Failing to inform us where to address him by mail, we have to adopt this manner of notifying T. W. Drullard to immediately discontinue canvassing for this office. He was last heard from in Plumas county.



MAP OF THE MINING DISTRICTS OF UTAH.

400 feet of stock in the Kitterman ledge, Ely District, Nevada, and that on the 5th inst., the defendant entered upon possession of the ground and from that time to the present has extracted and carried away ore valued at \$10,000. That on the 6th of September, David Sanderson owned the ground in question and transferred his claim to plaintiff, and since that date it is

damage of Kitterman to the amount of \$70,000—value of ore extracted; Kitterman has also given the plaintiff right of action, and an ejectment suit has been instituted at Pioche. Plaintiff prays for judgment for the gross amount, \$100,000.

**SOHRELE**, a Swedish chemist, discovered chlorine gas in the year 1774.



## MECHANICAL PROGRESS.

### Floors for Workshops, Etc.

Mr. Coleman Sellers, writes to the *Journal of the Franklin Institute* as follows:—Ground floors for large machine shops are very often made with the plank resting on the surface of the ground, the sleepers to which they are spiked being imbedded in the ground. I have been informed that white pine planks last longer than oak for the same purpose, and it is in fact considered the best wood for the purpose. Some attempts have been made to prevent the decay of such floors, but the question has at once arisen as to the economy in each case. Floors where heavy machinery is erected are subject to very severe wear, and it is asserted that a two-inch white pine floor will wear through in such a place before it has rotted out.

On the line of the Georgia Central Railroad floors have been laid in a peculiar manner, which is deserving of note. The ground is levelled off for the floor, and ditches dug to receive the string-pieces or joists; these are coated with melted rosin, before being laid, on the three sides in contact with the ground. The floor is then laid, with a space of half an inch between the surface of the ground and the under side of the floor planks. After the floor is all down, holes are bored, at intervals of say three feet, over the whole surface, and melted rosin poured into the space below the floor, to entirely separate the planks from the ground. The President of that road, says that floors so laid show no signs of decay, after many years use, in places where the floors usually rotted out in a short time. The asphalt pavement was adopted in one large shop in this city, but I have not heard how it has stood the test of wear. It was made of spawls from granite mixed with coal tar and asphalt.

In connection with the decay of floors it may be well to note that reliable builders state that on outside walls the ground floor joists are likely to rot off in about fourteen to fifteen years. My attention was called to this by the sinking of the floors in two houses in West Philadelphia, which had been built about fifteen years. An examination of the case showed that all the joists which had so rotted had been built into the wall at the ends, and the rot had occurred where the timber was excluded from the air and submitted to the moisture of the outside walls.

Examining houses in the country which have been erected for at least fifty years, I find the joists still sound, but in no instance have I observed the practice followed of carrying up the cellar wall flush between the joists, as is now the custom in cities. It seems evident that the best plan is to make an offset in the cellar wall to receive the joists, and, if the space between the joists is to be filled up for the looks, to let the filling in fall back of the face of the wall, below the joists, say one or two inches.

**COMBINED RUBBER AND COPPER WIRE FOR PIPE COUPLINGS.**—Mr. Fredrick Kibler of Baltimore, Maryland, has patented an improved joint for water pipes, steam pipes and steam chests, around bolts and other places, whether the joint be round, square, or of any other shape, which is claimed to be simple in construction and reliable and effective in use; it consists in a rubber or equivalent plate and copper wire for forming the joint. The plate made of rubber or other suitable material, is cut to fit between the faces that form the joint. Upon the plate is placed a copper wire, bent into a form corresponding with the hole or opening around which the joint is formed. The copper wire, which forms the real joint, should be one size larger than the thickness of the rubber plate, so that it may be flattened down between the faces of the joint, and may thus make the joint more perfect. This construction enables the wire to be arranged upon the rubber plate as may be desired, or so as to avoid flaws or imperfections in the plates or faces between which the joint is formed. If desired, two rubber plates may be used, with the copper wire placed between them.

**A NEW PRINCIPLE IN SEWING MACHINES.** Something entirely new has just been introduced to the public, in New York, and was exhibited for the first time on Thursday evening, at the Fair of the American Institute. It consists in making the shuttle stitch from two ordinary spools of thread without rewinding, and is certainly a very great improvement in the sewing

machine line. This has often been attempted, and a great deal of money has been expended in trying to accomplish it, but until now it has not been a success. It is claimed to be the greatest improvement made in this line since the needle and shuttle introduced by Howe, and the drop-feed by A. B. Wilson. Its value is testified to by a large number of people who have examined it at the Fair.

Patents have been secured in this country and Europe, and it is in the hands of a very strong and wealthy company, which numbers among its Directors some of our wealthiest men, and the invention will soon be placed before the public.

**THE WASHING OF CANAL BANKS.**—The Iron Age, in noticing the proposition of Mr. Myers to clothe the sides of the banks of canals with iron plates, an eighth of an inch in thickness, securely fastened, and suspended about equally above and below the water line, to prevent injury to the banks from the wash of passing boats, and the device says it would be a very good one if there were any serious wash to obviate. As it is, however, the invention is designed to meet an imaginary necessity, so far as the Erie Canal is concerned.

It may be, adds the *Age*, that, on some canals, the banks are injured by the wash of which we hear so much, although we have never seen an instance in which such was the case; but the Erie and other New York State canals suffer no such damage, nor is it either necessary or desirable to take the banks into consideration in seeking a solution of the question of steam navigation. This is a mistake which inventors persist in making, notwithstanding the assurance of the Canal Commissioners and the Commissioners of the State bounty, that no possible injury can be done to the banks by any system of propulsion which is mechanically adapted to the business of the canals. If this could be impressed upon the minds of those who are designing and building steam canal boats, many of the imaginary difficulties would disappear, and inventors would be saved the trouble and expense of making costly and useless experiments. If sufficient power is provided for economical traction, the banks will take care of themselves. The above facts with regard to the washing of canal banks, will be new to most of our readers; but they are no doubt correct.

**TESTING SILVERY COATING OF METALS.**—It is sometimes a matter of interest to be able to determine, by means of a simple test, the nature of a silvery coating to a metal, whether it be pure silver or some other substance. This is said to be readily accomplished by the use of a cold saturated solution of bichromate of potash in pure nitric acid, of one and two-tenths specific gravity. The surface of the article to be tested is to be first washed with strong alcohol, so as to remove any lacquering, and then a drop of the solution applied by means of a glass rod, the place affected being immediately rinsed off with water. If the substance in question be silver a distinct blood-red spot of chromate of silver will be perceived. The spot is brown on German silver, and after rinsing shows no trace of red. With Britannia (composed of tin, antimony and a little copper), a black spot will be developed, but no effect will be seen with platinum. Upon a surface amalgamated with mercury a reddish-brown deposit will be perceived, which is completely washed away on rinsing. With lead and bismuth a yellow deposit remains. Zinc becomes strongly etched, the liquid, however, disappearing completely on washing. Tin is attacked also very decidedly, but the test liquid imparts a brownish color, and an addition of water produces a yellow deposit which readily attaches itself to the metal.

**WIRE SURFACE FOR PLASTERING.**—The most ingenious device has recently been patented by Mr. Jas. Johns, of Chicago, in the use of wire in forming a plastering surface. The plan consists not in the use of any wire net-work expressly manufactured for the purpose, as might be supposed, but simply in the fastening of ordinary wire upon the posts, in place of lath. The wire is passed from a reel and drawn tightly in parallel horizontal lines about half an inch apart. It is attached to the standards by means of two narrow strips of iron, one of which is nailed to the post, and another fastened in the same manner upon the first, the wires being held at equal distances apart between the iron strips. It would naturally be supposed that plastering applied upon this wire would pass largely through, and fall off, but this does not prove the case, and the result of the device is a solid wall of plaster, through the middle of which the wires extend, holding it firmly.

## SCIENTIFIC PROGRESS.

### The Nature of Comets.

Sir William Thompson, in his late address before the British Association, at Edinburgh, referred substantially as follows to some late speculations with regard to the nature of comets: Most important steps have been recently made toward the discovery of the nature of comets. One of the theories is that they consist of groups of meteoric stones. In 1866, Schiaparelli calculated from observations on the August meteors, an orbit for these bodies which he found to agree almost perfectly with the orbit of the great comet of 1862. \* \* \* The densest part of the train, when near enough to us, is visible as the head of the comet, which is self-luminous in its nucleus, on account of collisions among its constituents, while its "tail" is merely a portion of the less dense part of the train illuminated by sunlight, and visible or invisible to us according to circumstances, not only of density, degree of illumination, and nearness, but also of tactic arrangement, as of a flock of birds or the edge of a cloud of tobacco smoke.

One of the most serious objections to the above theory is hinted at as follows: "In no respect is the question as to the materiality of the tail more forcibly pressed on us for consideration than in that of the enormous sweep which it makes round the Sun in *perihelion* in a manner of a straight and rigid rod, in defiance of the law of gravitation." "The projection of this ray, to so enormous a length, in a single day, conveys an impression of the intensity of the forces acting to produce such a velocity of material transfer through space, such as no other natural phenomenon is capable of exciting. It is clear that if we have to deal here with matter, such as we conceive it, viz., possessing inertia—at all, it must be under the dominion of forces incomparably more energetic than gravitation, and quite of a different nature."

Think now of the admirable simplicity with which Tait's beautiful "sea-bird analogy," as it has been called, can explain all these phenomena.

**THE FIVE RACES OF MEN.**—It is a hundred years or so since the scientific men of Europe settled upon the classification of mankind, which has since prevailed—Caucasian, Mongolian, Negro, Malay and American—a very rude division, which has been found quite inadequate of late years to satisfy the advance of ethnological knowledge. Three or four years ago Professor Huxley indicated his belief in quite a different classification, which he has now illustrated in a paper contributed by him to the British "Journal of the Ethnological Society." He believes in four principal types of mankind, and a fifth which he derives from two of these four. His classification is: 1. The Australoid type found in all Australia, except in Tasmania, and among the hill tribes of the Deccan in Hindostan. 2. The Negroid type, found in all Africa, between Sahara and the cape, including Madagascar, and including as a modified form the Malays and the inhabitants of Tasmania, and the island of Continental Australia, whom, with some others, Huxley calls Negro. 3. The Xanthochroic or fair-skinned type, found chiefly in Central Europe, but extending into Northern Africa, Syria and Arabia, and even as far as Hindostan; and 4. The Mongolian type, inhabiting an enormous area lying mainly east of a line drawn from Lapland to Siam, but including the Dyaks of Borneo and many of the islanders of the Asiatic archipelago, or "Indonesia," who are mixed with the Australoid type, and including also the Esquimaux, Greenlanders and American Indians.

The four great groups of men, according to Huxley, occupy all the world except Western and Southern Europe, Northern Africa, Asia Minor, Syria, Arabia, Persia and Hindostan. In these regions are found, more or less mixed with Xanthochroic and Mongoloids, and extending for a great distance into the regions occupied by the four great types, the Melanochroic or dark-skinned whites whom he regards as a mixture of the Xanthochroic and Australoid types. He considers the Egyptians, ancient and modern, as a modification of the Australoid type, and not Melanochroic; but the latter, in their best form, are represented by many Welshmen, Irishmen and Bretons, by Spaniards, South Italians, Greeks, Armenians, Arabs, and high-caste Bramins.

### Use of Chloride of Iron in Metallurgy.

A process has been patented in Paris by D. Chalandre, for the employment of chloride of iron in the reduction of ores containing sulphur, arsenic, and antimony. The reaction is founded upon the property of the chloride of iron in the presence of air and moisture to decompose the sulphur, arsenic, and antimony compounds of the metals such as iron, copper, cobalt, and nickel. The proto-chloride is changed to sesqui-chloride, and the above-named metals are converted into chlorides. By exposure to the air the chloride of iron is again reclaimed, and can be used over again. It may sometimes be necessary to add a little nitric acid in order to hasten this operation. If iron and copper pyrites are present it is only necessary to add chloride of sodium, as by the presence of the chloride of iron and atmospheric air, the sulphur of the ores will be oxidized to sulphuric acid, which will occasion the formation of sulphate of iron or sulphate of copper, and there will also be produced some sulphate of soda.—*Journal of Applied Chemistry.*

**EXTRACT OF HORSE-CHESTNUT WOOD.**—For dyeing heavy black upon silk an extract of horse-chestnut wood has recently acquired great importance. It is preferred to nut galls or divi-divi for this purpose. To what particular principle in the wood is to be ascribed the important property of which use is now made, has not been determined with certainty, but it appears to be ascertained that the extractive matter of horse-chestnut wood now plays an important part in the silk manufacture of Europe. The question is not one of so much importance in this country as it is in France and Germany, but it ought to occasion a search to be made for some suitable substitute. We doubtless have in our forests, trees that would yield a similar product if they were to be examined. There is a weed growing in great abundance in New England known as *hard hack*, which ought to be examined with reference to its possible use in dyeing and tanning. It is a nuisance as it now exists, and if it could be used for anything, could he had in immense quantity.

**PICRIC POWDER.**—Prof. Abel, chemist to the British War Department, has, after prosecuting numerous experiments, succeeded in perfecting the new explosive agent recently produced by him, under the name of picric powder, as a material for charging shells. Although it is not so violent in action as gun-cotton, nitro-glycerine, or picarte of potash, picric powder is a much more powerful explosive than gunpowder, and has other properties which appear to render it peculiarly adapted for employment in shells. Its merits are, that it may be readily and expeditiously prepared, and that it is remarkable for its safety as compared with all other explosive agents, being somewhat less sensitive to ignition by percussion than gunpowder. The president of the committee of Explosives at Woolwich having pronounced the new powder worthy of further experiment, it will be tried under various conditions in order to ascertain its suitability to the requirements of the service.

**DO FORESTS INCREASE THE RAIN FALL.**—Prof. Henry, of the Smithsonian Institute, in an interesting address upon the methods of observation, and the results of the meteorological observers engaged by the Institution, lately remarked upon the popularly accepted belief, that the removal of forests, and, generally speaking, cultivation, tended to diminish the amount of rain fall. He expressed the opinion that the observations of the Institution, which extend over a period of twenty years, have as yet failed to establish a theory of this kind, and that it must therefore be regarded as a gratuitous hypothesis unsubstantiated by fact.

**YELLOW COLOR FOR SOAP.**—The chemical works of Schering, in Berlin, have introduced two shades of sulphide of cadmium, a lemon and orange yellow, for the coloring of toilet soap. Of all the agents thus far tried to give a lively yellow color to soap, sulphide of cadmium (cadmium yellow) has proved the most permanent. Age and sunlight do not affect the color, and the quantity required is exceedingly small. The application is as follows: The cadmium yellow is rubbed up with oil, and added to the soap under constant stirring. The color is not dissolved in the soap, but suspended in it and much depends upon careful mixing.



## CORRESPONDENCE.

### MINES ON LANDER HILL, NEVADA.

ENS. PRESS:—I left Battle Mountain station on one of Fuller & Clugage's daily coaches to visit the famous "Reese River mines." We arrived at Austin

next morning at 5 o'clock. The place is in a flourishing condition now, although it has been almost at a stand still for the past few years. The reason of this was that the numerous mining excitements in different places carried off the prospectors; but since Manhattan Co. have begun operations and reduced milling rates to reasonable prices, the aspect of affairs has changed. I notice that a large brick court-house is being built; it will be 62x44, two stories high, and will cost upwards of \$25,000. Not an idle man can be found in this place during the day, a fact that speaks well for its prosperity. Many are busy working and sorting over old dumps—a business that pays well. During my last visit I was unable to see the

#### Manhattan Co.'s Mines

for the reason that they were making extensive repairs and alterations to the shafts, buildings, etc., accordingly I determined to do so this time. Mr. John Frost is mining superintendent, and through his courtesy I was enabled to inspect all the principal lodes on Lander Hill, which are so well known on this coast. Many of your readers will recollect the "excitement" of 1862, when this place was first discovered. Mr. Frost located the North Star, and Oregon, at that time, and since then has been connected with the mining interests in this section. There are three engines belonging to this company, all large ones; one for pumping water and air, one for hauling, and one for sawing timber. We went down the shaft in a safety-cage, and found ourselves, when we stopped, 558 feet from the surface. The two shafts are four feet square in the clear, and do not vary an inch all the way down. We passed southeast 350 feet in the drift.

#### The North Star Ledge

runs northwest and southeast, and dips to the eastward. The lode is incased in solid grey granite and will average from 8 to 20 inches in width. This is the deepest shaft on the lode, and the place where they have found the best rock, proving conclusively that the lodes are permanent. From the surface, for a distance of 170 feet, they found chloride and after that the ore changed for the better. The ore I saw at this depth will yield, by the Stetefeldt furnace \$2,000 per ton, and they have about 150 sacks that will mill about \$500. The bullion averages from \$200 to \$250 per ton in silver. The richness of the ore at the lower level speaks well for the prospects of the place. Ascending in the cage to the level 240 feet from the surface, we pass 300 feet east in

#### The Oregon Ledge.

the average width of which is 16 inches. It is a parallel lode with the North Star, and the ore is of good quality, averaging \$250 per ton in the mill. Passing west and crossing the main shaft I noticed that the ledge held its width well. The water taken out of this mine, drains a number of others, the pump raising about 23,000 gallons of water in 24 hours, which furnishes the mill below. The ore contains stephanite chloride of silver and some ruby silver. This company employs about 100 men—working by contract only—giving them a certain percentage and furnishing everything. They get all the way from \$4 to \$15 per running foot for drifting. Where they are now they run from three to five feet in 24 hours, working two shifts.

#### Pacific Mining Company.

This company (of London, England,) owns 8 or 10 ledges west of the Manhattan company, in the center of all the principal mines on Lander Hill. They have run one incline on the

#### Buel North Star,

which is 1,050 feet long, at the end of which, the ledge is one foot thick, the ore assaying \$500 per ton. Capt. Prideaux has

control of this company's mines. There are at present on hand 50 tons of ore ready for the mills which will commence running shortly. They entertain no doubt as to the value of their property and under the present efficient management they will surely be successful. Capt. Prideaux has lately taken charge, the former superintendent having pronounced the mine as worthless, but now everything is running smoothly and good ore coming out. About 50 men are employed. This company own the Matteson 10-stamp mill about 4 miles from Austin and have ordered a White Rotary Furnace with all the improvements from the Etha Iron Works in your city. Mr. John Howell will superintend its construction.

#### Mines Near the City.

The "Saybrook" shaft is 160 feet deep. Rock taken out last winter worked from \$500 to \$800 per ton. Six men are now at work getting out ore. The miners get about \$15 per foot for the work.

#### The Diana

shaft is 325 feet deep the lode averaging a foot and a half. Mr. McIntyre and others have leased it and receive 10 per cent. of the proceeds—10 men being at work. They take out 25 tons of ore per month, averaging \$200 per ton.

#### The South America

is down 300 feet; four men at work.

#### The Oregon

has an incline 280 feet deep and one taking out good milling ore. Campbell & Co. are taking out a ton and a half a day with 6 men.

#### Esther.

This mine was located in 1864. The mine was shut down some time ago on account of the high price of smelting but now that it is so reasonable they are again at work. I am told that the ore from the surface down to 103 feet averaged from \$50 to \$75 per ton. The ore is rich silver and sulphurets, and is improving with the depth.

#### The Magnolia,

west of the Pacific Company's property has an incline 400 feet long. The ore now being taken out will go \$80 and upwards. Ten men are at work under Mr. W. H. Clark's superintendence. The mine itself has paid for all its improvements. The Manhattan mills work the ore. On the

#### Mohawk Mine,

the incline is down 300 feet. They are now taking out good \$400 ore; 40 tons are on the dumps awaiting shipment to the mills. This is a well-defined ledge and is owned by Curtis & Co.

#### North Star.

This ledge has been leased to Tucker, Alexander & Co. The incline is in 150 feet, and they are now taking out excellent ore. They had 15 tons that gave them returns of \$4,000 per ton. This is a valuable piece of mining property.

#### The Pray & Pullen Mine,

on Central Hill, after being idle for three years past, has again renewed operations. They are now sinking and opening up the mine and have an incline down 80 feet.

#### On Whitlatch Hill,

on the south side of Austin, are some very promising mines. The Whitlatch mine has an incline down 300 feet; eight men at work.

#### White's Rotary Furnace.

Some of the citizens of Austin have formed a company, erected a White's Patent Rotary furnace, and remodelled a mill, a short distance below the city. The mill has 10 stamps, 6 pans and 3 settlers. Mr. John Howell superintended its construction and began operations in July, 1871. The patentee receives 50 per cent. of its proceeds of each ton as royalty, until the Co. pays \$2,500, after which they have the patent right themselves. The cylinder is 24 feet long by 30 inches in diameter on an incline one foot in 12. It was cast in sections three feet long and firmly bolted together. There is a fire place at each end; 1,000 pounds an hour have been run through. The furnace is revolved on three two-foot wheels and balanced thereon by four one-foot wheels being turned by a chain belt connected to a counter shaft. The cylinder is lined with fire brick forming grooves, cavities or projections, to lift and drop the ore at one each half revolution of the cylinder. Two cords of wood are used an hour, and about 4-horse power is required to run it. Dry salt can be fed in at the hopper or previously mixed with the ore. The contents can be made to pass from one end to the other at 16 revolutions per minute, in 15 minutes, or if very base can be kept in double that time at a slower speed.

W. H. M.

### "Slate Books."

EDITORS PRESS:—The Silicate Book Slate is an invention—not very well defined by its name—by which a hard surface fit to receive pencil marks of all kinds is put upon any desired substance. We have been using a memorandum book with a silicate surface prepared for the lead pencil. It is very nice to write upon, takes the marks perfectly and retains them as long as may be desired, and then in a moment by using moisture every mark may be removed. When the surface is black the slate pencil can be used equally well.

We saw a large sheet of pasteboard at the Fair coated with the silicate surface and designed for the use of a draughtsman in a machine shop. He intended to use it for making his first designs upon. Of course whenever it was necessary to change a line he could do it with the greatest ease, yet the whole drawing would be permanent enough to last until copied.

The Silicate Book Slate Company of this city, to judge from the display made at the New York fair, must manufacture a hundred different articles in which these silicate surfaces are used. Among them we noticed blackboards, account books, time tables, wages books, wash bills, memorandum books, school slates, tablets, drawing books, ruled books for rough draughts of writings, and a great many other things. All of these are made for both lead and slate pencils. W. E. P.

### Manhattan Co.'s Mill and Furnace.

ENS. PRESS:—The Manhattan mill which is located at Austin, Nevada, has been remodelled during the past few years and all the late improvements added. It was started up after repairs in July, 1870. The mill has 20 stamps weighing 640 lbs. each, which drop from 90 to 100 times per minute. It crushes from 20 to 26 tons of ore in 24 hours, which is carried by screw conveyers from the batteries and elevated into the large hopper at the top of the Stetefeldt furnace, and fed through one of Standish's pulp feeders, the percentage of salt being added from another machine of the same kind.

The feeding of dry pulp from a hopper is so as to get a certain number of pounds per minute, and no more or less, which is most successfully accomplished by this little machine, that has been running for over a year without the necessity of repairs. The salt is not crushed with the ore, but is kept separate and fed in proper quantities into the ore, being thoroughly mixed with it before entering the furnace. The ore after being roasted is taken in a car to the pan room, which is one of the finest and best arranged in the State. The building is 79 feet, by 37 feet 6 inches, and contains eight of Standish's improved pans and settlers. The pans are driven with disc frictions, which are considered a decided improvement over belts. The pans are 5 feet in diameter by 30 inches in depth, and carry one ton at a charge. They have valves instead of plugs, which are constructed with a rubber face and are operated with a lever in a very convenient manner. Over each pan and settler is an iron track with a traveling hook for hitching a chain tackle for the purpose of handling any of the machinery and saving all heavy lifting.

The amalgam after being drawn from the settlers through iron bowls attached to the bottom, is carried by its own gravity to a very ingenious contrivance for washing and cleaning, after which it is elevated into a reservoir, and from there drawn into the canvas strainers as required. The quicksilver, after being strained, is then taken to another reservoir, and from there conducted in pipes to iron bowls, one of which is placed near the top of each pan. The amount of quicksilver in each pan at a charge is 600 pounds, making 4,800 lbs. for the eight pans; and as they are charged three times in 24 hours, 14,400 pounds are required for use. A great deal of time is saved by employing machinery for handling it. The retort and smelting room is about 30x40, and contains three retorts and two furnaces for melting bullion. The machinery is driven by a fine engine of 18-

inch bore and 42-inch stroke, which uses from 6 to 7 cords of wood per day, costing \$10 per cord. Mr. E. V. Standish has arranged all the machinery in the most complete manner, and its successful workings are to his credit.

The Stetefeldt furnace, under the charge of Mr. Francis Seip, and which was described and illustrated in the SCIENTIFIC PRESS some time since, is giving good satisfaction both to the company and to the miners. The charges of pulp are drawn every three-quarters of an hour and wet down while red hot. The stack is 30 feet high. This company have reduced the charges from \$50 to \$20 per ton. Five hushels of coal and wood are burned every hour. They return on ores running less than \$300, 80 per cent.; from \$300 to \$500, 83 per cent.; 500 and upwards, 85 per cent. Forty pounds of ore can be roasted per minute, making a total of 2,400 an hour. The proportion of salt used is from 6 to 10 per cent. The mill and furnace are under the efficient management of Mr. Allen A. Curtis. W. H. M.

### San Diego Mines.

ENS. PRESS:—Our mining interests are improving daily, and we are all hopeful of a bright future. The

#### Golden Chariot

still continues to take the lead in the way of profit. The owners are now in your city negotiating for a mill. This vein is between the granite and the slate, and is traceable for at least three miles. It is too small to work with profit at all other parts except where they are now. All the other mines in this district are in talcose slate. On the

#### Bailey Mine

they are still at work taking out rock, and the ledge is widening daily. The ore will require roasting to pay well.

#### The Redman

is being worked in a systematic manner. The vein is nine feet wide at bottom of shaft. This ledge has produced more bullion than any other in the district, although the average per ton has been less than many others. Thirty tons of rock from the

#### Kentuck

yielded, as near as I can ascertain, at McMechan's mill, \$50 per ton. The lode looks well, and the ore shows plenty of free gold.

#### The Madden

varies in width from two inches to two and one-half feet, and the rock looks rich; in fact, this ledge has paid better than any other in the camp—the Golden Chariot excepted. A specimen from this ledge in the late Mechanics' Fair was prominently noticed in the SCIENTIFIC PRESS.

#### The Antelope

appears to be worked in a very loose and careless manner; but for all that it is one of our best mines, and, if worked with skill and good management, would pay its owners well. There are 25 feet of vein matter between the walls more or less rich, but the best rock only is worked.

The Ophir, Chapparral, Warlock, and City of Richmond are all idle. Mr. Whitney, of the firm of McDouald & Whitney, of your city, is at present superintending the McMechan mill and Redman mine. Mr. F. R. Wilson, having secured a good mill site at Banner City, intends erecting one of his patent steam stamp mills shortly.

QUARTZ.

Banner City, Oct. 14, 1871.

NOT CARRIED OUT.—When in Washington in May last, Commissioner Leggett, informed us of the intention of the office to supply each inventor for the term of six months after his patent issued with full copies of all patents, issuing in the same class as his own. We predicted at the time of publishing our notice of such intention, that we did not deem the idea a practical one, and we now have to inform our readers that it has never been carried out by the department.

ELECTROTYPES BY MAIL.—On the authority of the attorney of the N. Y. City P. O., given personally to the N. Y. editor of the PRESS, we recently stated that wood cuts, etc., could be sent by mail at newspaper postage rates. Three weeks later, we found the attorney's decision reversed, without any explanation, and letter rates of postage are demanded.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**ALPINE CHRONICLE.**—Oct. 19th: The bullion producing part of the Exchequer mill will start up in a few days.

### AMADOR COUNTY.

**MINE BONDED.**—*Jackson Ledger*, Oct. 21st: The good Hope Quartz mine within the limits of Jackson, has been bonded to an English Co.

### CALAVERAS COUNTY.

**PETTCOAT.**—*Calaveras Chronicle*, Oct. 21st: Pay ore has been struck in the shaft now being sunk in the mine. The lead shows a solid body of quartz from 3 to 4 feet in width, sufficiently rich in gold to pay the expenses of sinking.

**PRUSSIAN HILL.**—Thirty tons of Prussian Hill ore crushed, yielded about \$1,100. The rock was taken from a shaft 70 feet in depth, and the lead improves as they go down upon it. They have bargained for the "French" mill at Rich Gulch Flat, which they intend removing to their mine as soon as practical. The battery consists of 15 stamps, a 35-horse power engine furnishing the motive power.

**CORRAL FLAT.**—Champion, Boughton & Co., proprietors of the Corral Flat mine, closed up again recently. The mine pays \$6 per day to the hand.

**READY TO CRUSH.**—Horchner Siegler & Key, proprietors of the San Bruno mine at Mosquito Gulch have quite a quantity of rock in readiness for crushing.

### INYO COUNTY.

**ECLIPSE.**—*Inyo Independent*, Oct. 14th: Operations at the mill and mine are being carried on with vigor. A mile and a half of the tramway to the mine is completed. All the hands are engaged in deepening the ditch—taking a bench of about 18 inches in depth from the bottom of the upper end of it, for a distance of 2 miles, to let in a greater supply of water. A portion of the battery—20 stamps—is completed and has been running during the past week.

### LOS ANGELES COUNTY.

**MINING AT OWENS RIVER.**—*Los Angeles News*, Oct. 14th: The Swansea M. Co. has suspended operations for the time being. The Eclipse quartz mill—40 stamps, worked by water-power, is running full time.

### NEVADA COUNTY.

**ROUGH AND READY.**—*Nevada Transcript*, Oct. 20th: At Randolph Flat the Picayune Co. have been running their tunnel for 16 months. They have run a bed-rock tunnel 725 ft. and have struck an excellent bed of gravel which prospects from 25 to 50 cents to the pan.

The Webster claims, adjoining, are being worked through an incline. From a piece of gravel 25 by 100 ft. this Co. have taken out \$27,000.

Torpy & Co. have their shaft down to gravel and are hoisting pay dirt with a whim.

McSorley & Co. have run a tunnel in from the face of the bank 250 ft., and are "breasting out" for drifting.

The Portuguese Co. working the extensive Ladd claim, are putting in a substantial flume for the purpose of working their ground on a larger scale than hitherto. There is some prospecting for quartz going on.

The other Co.'s near by own hydraulic claims and cannot start until water can be obtained.

**MAGENTA FLUME.**—This flume, on the line of the Eureka Lake and Yuba Canal Co. is being taken down. It cost about \$80,000, and was considered a wonderful but useless engineering work. The Co. will build a new flume 90 ft. lower, at the gap. They are also digging a new ditch from below the flume to a point opposite Moore's Flat. It is estimated that the new work will cost \$20,000.

The South Yuba Canal Co. have recently repaired and improved all the ditches in Nevada and Placer counties. In this work the Co. has expended \$30,000. For several months 150 men have been employed upon these works. At the head of the ditch, where the hoxes have frequently washed out in heavy winters, a shelf has been cut under the granite bluff, and the flume so securely put in that there is little danger of its being washed out in the future. A new flume, leading out of Bear Valley has been rebuilt for a distance of 8,400 ft. and over 6 miles of flume have been repaired.

**NORTH STAR.**—*G. V. Union*, Oct. 14th:

The mine is sending splendid ore to the surface. The mill is running constantly, using all the water attainable for the batteries, and the platforms are crowded with ore. Several improvements at the mine and mill are contemplated. A new mill engine is to be put in, hoilers are to be renewed and a new shaft, to the east of the mill, is to be put down.

**NEW LEAD.**—The Prospect Co. have located 2,100 ft. on a recently discovered quartz ledge near the South Star mine. They have sunk a shaft 40 ft., from the bottom of which they are taking out a test crushing. The rock at that depth shows well in sulphurets, and gold is also visible.

**KNIGHT OF MALTA MINE.**—Caruana & Co. are doing splendidly on the ledge. It is a large one for this dist., and is filled with rich sulphurets and free gold. Work in sinking on the ledge and running drifts is being constantly done.

### PLACER COUNTY.

**COX & DENTON.**—*Auburn Herald*, Oct. 21st: A new body of ore has been struck in this mine which is richer than any previously taken out. A contract was lately let to sink the shaft 50 feet deeper, and in going down this body was developed.

**STRUCK IT AGAIN.**—McFadden has opened on rich ore in the old Peter Walter mine in the Ophir dist.

**EVENING STAR.**—Rich ore is being taken from the mine, on Rock Creek, 3 miles from here. On the first discovery of this mine it was rich, but the wall rock was very hard and the expense of sinking was very considerable. Where the new strike has been made the rock has been found to be softer and the ore rich. The Co. have a steam mill, hoisting works, etc., at the mine, and crushing will soon commence.

### PLUMAS COUNTY.

**A BIG MILL.**—Applegarth Bros., who recently purchased the Indian Valley mine, are commencing operations on an extensive scale. It is their intention to erect a 40-stamp mill. The shaft (in which the recent fire occurred) will be abandoned and the mine opened so as to work it to a better advantage than formerly.

### SAN DIEGO COUNTY.

**BULLION.**—*San Diego Union*, Oct. 12th: There was shipped by W. F. & Co., on Monday, bullion, amounting to \$1,880.

**SILVER ORE FOUND NEAR SWEETWATER.** A short time ago indications of the existence of silver ore were discovered about 30 miles from town, on Sweetwater, near Cajon Ranch, and a small party of prospectors, went there about 10 days since, and commenced to develop the lead, which, when they left off digging, was 4 ft. wide and likely to widen further as developed.

**SAN DIEGO MINING.**—The McMechan mill which had stopped temporarily is again running night and day upon ore from the Redman lead. The Antelope mill has been leased, and is running night and day. The Helvetia Co. has suspended work for a short time, on account of the death of the foreman.

**JULIAN.**—*Cor. same:* The Owens' mine has a shaft down 180 ft., and the men are running a drift for air. There is a fine body of ore in sight. The Lone Star Co. is taking out some exceedingly rich rock. The Big Blue ledge looks well, and shows as much free gold as ever. They now have on the dump about 35 tons of very rich rock. The "Count's" ledge is at present doing nothing. The Hayden boys are sinking down at present, and therefore not taking out much rock. The ledge looks well, and the rock shows plenty of free gold.

**THE FRARY.**—or Stonewall—mine, is probably the largest and most valuable in this part of the State. The shaft is about 100 ft. deep and still going down, with only one level started, and this at the depth of about 60 ft. On this they have drifted 180 ft. to the south, and 100 ft. to the north. No rock has been stoped out as yet, the rock taken out in running the drift being sufficient to run the mill. The face on the north drift shows a ledge of pay ore at least 12 ft. wide.

The Bailey mine is said to have been bonded to Whitney, who has also bought half of the McMechan mill. The price is said to be \$20,000. The Golden Chariot boys are pushing things in their mine, and are taking out splendid rock.

### SIERRA COUNTY.

**SPECIMEN ROCK.**—*G. V. Union*, Oct. 22: We were shown yesterday a sample of quartz taken from a ledge discovered ten days since, about a mile from Downville. The rock shows rich in free coarse gold, and the lead will likely prove a valuable one.

### TUOLUMNE COUNTY.

**MANGANESE ORE.**—*Stockton Republican*, Oct. 18th: A large quantity of this ore from a town near Jamestown, is being

brought down for shipment. It goes to Phila., where it is used in the process of manufacturing steel.

### YOLO COUNTY.

**COAL IN CAPAY.**—*Woodland Mail*, Oct. 19th: D. H. Rice has left with us specimens of coal discovered by himself and others, in the mountains at the head of Capay Valley. There are good indications of a large and permanent vein and the specimens are of good quality.

## Nevada.

### EUREKA DISTRICT.

**PHENIX.**—*Eureka Sentinel*, Oct. 18: This Co. is bringing to the surface about 30 tons of high-grade ore per day from the Adams & Farren incline. The incline is down 200 ft. and the drifts are full of ore. A whim will soon be erected.

**COMPLETED.**—The new grade of the Eureka Con. Co., leading to the Sentinel mine, Ruby hill has been completed. A substantial ore dump at the mouth of the tunnel is in course of construction.

**PINTO MILL.**—The new mill is rapidly approaching completion, and will soon be in successful operation.

**OUTSIDE DISTRICTS.**—**SCHILL CREEK.**—A gentleman from that dist. describes the mineral belt to be 15 miles in length, and over one mile in width. The El Capitan is the principal mine of the dist. This ledge is 100 ft. wide, and for nearly 1,000 ft. the ore crops out 60 ft. above the surface. Assays have been obtained running up into the thousands.

### ELY DISTRICT.

**BULLION SHIPPED.**—*Pioche Record*, Oct. 19th: W. F. & Co. shipped since Oct. 12th, 47 bars of bullion valued at \$86,563.95.

**RAYMOND & ELY.**—From the 1st to the 13th of this month the Co. shipped as follows: On the 1st, \$43,571.41; 7th, \$48,027.15; 13th, \$50,005.28. Total \$142,493.74.

**PIOCHE MINE.**—The hoisting works are being rebuilt, with stone foundation, and everything placed in readiness for the reception of the engine, expected to arrive about the 20th.

**SOLD.**—The "Justice" mine was sold on Tuesday last for \$15,000. The shaft is 5x8 ft., over 100 ft. deep, and is about 50 ft. due west from the Lightner Shaft, on the Panaca of the Raymond & Ely Co. mines.

### HUMBOLDT.

**ECLIPSE.**—*Unionville Silver State*, Oct. 21st: The Co. have been employed for 3 or 4 weeks arranging preparatory to working the mine. They have a quantity of rich ore in sight.

**GALENA.**—The Shiloh mine still hangs fire. It is reported conditionally sold to English Co.

Butte Co.'s mill and mine are still taking a rest.

The English Co.'s copper mine, at Copper Cañon, is yielding more rich ore than it ever did before in the same length of time.

**GOOD ORE.**—*Winnemucca Register*, Oct. 21st: S. Kunkle exhibited this week some rich specimens of ore from his mine in Winnemucca Mt. The Kunkle Bros. claim is the first location south on the Pride of the Mt. ledge. They have already sunk shafts and run drifts in various directions on the ledge, and have taken out several tons of excellent ore. For 2 months they have been driving the main tunnel, which will have to be run 20 ft. further to tap the ledge.

**GALENA.**—The Nevada Butte M. Co. have decided to put up a large roasting furnace at their mine in Galena Dist.

### REESE RIVER.

**BEOWAWE.**—*Austin Reveille*, Oct. 14th: The owners are working on their ledge at a depth of 210 ft. and getting fair ore.

### WASHOE.

**BELCHER.**—*Virginia Enterprise*, Oct. 21st: This mine is looking better than ever before. The ore body on the 1,100 foot level has been opened to a distance of 200 ft. in north and south. For 100 ft. in length the deposit has been stoped out eastward to a distance of 70 ft. from the west wall, and the ore still continues. They are engaged in stoping to the east and south. From the sill floor they have raised to the height of two floors and have there stoped out a space 60 ft. in length by 50 ft. in width; with ore on all sides;—on the sill floor they are working from the west wall to the eastward and southward as stated above. Altogether, since they began working this huge body, there has not been hoisted out from it a single car load of waste rock. All goes to the mills just as it is dug down. At the extreme south end of the drift a cross-cut to the eastward has been started. This is in 40 ft., and in fine ore, with every indication that at this point of deposit will reach a width of 100

ft. In the old works a winze is being sunk which connected with the 900 ft. level of the Crown Point yesterday. This will be carried down for the ventilation of the stopes on the 1,100 ft. level of the Belcher. In the old works they are sinking an incline from the 850 foot level through which to hoist ore from below. This will be divided into two compartments, each 6½ ft. in height by 5 ft. in width. At the old mine they are erecting new hoisting works, which will be provided with two new hoisting engines and new machinery. They are hoisting from the deposit on the 1,100 ft. level, 180 tons of ore per day, which yields \$81 per ton.

The big dam of the Union Mill Co. on Carson river, will be completed by the first of next month.

**STRUCK WATER.**—Daney Co. have struck a considerable stream of water in a drift on the 400 ft. level.

**SIERRA NEVADA.** Co. are running their mill with plenty of low grade ore in sight. They have not yet started up the Sacramento and Meredith mill.

**YELLOW JACKET** mine is yielding 70 tons of ore per day. They have resumed crushing.

**TRAINS OF CAGES.**—Some of our leading mines are using two cages, one above another and the plan is found to be so economical that we should not be surprised to see a third cage added after a while.

All the mills on the Carson are being enlarged, improved and put in thorough order. There are probably three or four hundred machinists, carpenters and laborers at work on the river between Carson city and Dayton.

**THE OLD KELSEY MILL.**—*Gold Hill News*, Oct. 18th: The mill at the lower end of Silver city is being thoroughly overhauled and the machinery throughout put in complete order for another long and efficient run.

**RICH.**—The pulp assay of ore from the Belcher at the end of last week gave, gold, \$502; silver, \$39; the total at \$541 to the ton.

**PAPPOOSE MILL.**—The mill, Lower Gold Hill is having its internal arrangements overhauled and reconstructed. The steam machinery is being repaired and refitted, and the hoilers overhauled. The steam creative and working capacity will be increased by the addition of the hoiler from the Eclipse mill and an engine from Virginia.

### WHITE PINE.

**BULLION.**—*W. P. News*, Oct. 14th: W. F. & Co., shipped to-day on account of South Aurora M. Co., 3 bars weighing 180, lbs valued at \$3,399.88.

**CASPIAN.**—The incline and drift is down 230 feet and about 150 feet vertically from the surface. The drift has penetrated the spar ledge nearly 30 feet showing an immense body of spar of a highly silicified character.

**HENLOCK.**—Sinking and finding good ore at a depth of 50 ft.

**GLAZIER.**—The drift running to connect the Slauson with the Osborne shaft is progressing finely. The ore body in sight is 6 ft. wide.

**ROUGH & READY.**—The shaft is going down through white spar. There is a fine showing of low grade ore in this mine.

**NORTH AURORA.**—Drifting north and south from the Lady's Chamber, for the purpose of prospecting the ground ahead of the main workings; 40 tons of ore are hoisted daily. Hoisting from the Risale chamber and taking out a better quality of ore than has ever before been extracted. Drifts running north and south to find the extent of the ore body.

**EDGAR.**—A vast improvement has taken place. The foot wall is pitching east. Down at a depth of 110 feet a body of ore is in sight 20 feet thick, showing chloride and horn silver. Now running to connect with the Anchor tunnel for air.

**EAST SHENOYAN.**—Horn silver ore is found in all the faces of the works. The Oxford shaft will be started on Monday to strike the vein 100 feet from the Regent. This will make an extent of nearly 300 feet in length, from north and south, that the Co. is operating on. The last crushing yielded at the rate of \$50 per ton.

**PORTAGE.**—Work will be resumed in a few days.

**ARGYLE.**—Sinking shaft, with a fair quality of ore in sight.

**EBERHARDT.**—Working in the drift running from the Keyatone shaft.

**WARD BEECHER.**—Hoisting from the Buchanan and Phillips chambers 40 tons of ore per day.

**SILVER WAVE.**—All the works of the mine have been let out on contract.

**BIG SMOKY.**—Purchased by the Hidden Treasure Co. Every department of the



mill will be overhauled before starting up again, which will occupy about two weeks.

**WEST SIDE-TRENCU.**—Since last report a body of ore 4 feet wide has been developed in the southeast drift assays of the rock averaging \$300 to the ton. The Monte Cristo mill started up this week on ore from the mine.

Arizona.

**MOHAVE Co.**—Prescott *Miner*, Oct. 7th: Vein of Little Chief narrow, but widening, as progress is made. Ore rich in chlorite. ... Franklin lode is 4 ft. between walls, and contains rich carbonate ore. The owners have sunk upon it 7 ft. ... Little Tiger carries great quantities of native silver, besides much chlorite. ... Cupel lode, quite a large vein; carries argenteiferous galena and carbonate ores. Monitor lode shows rich antimonial silver ore in abundance. ... Woodworth lode is a large and well-defined. ... Union is large galena and carbonate lode, on which two shallow shafts have been sunk. ... Vanderbilt has been pierced by a shaft 50 ft., and the ore has assayed from \$200 to \$700 per ton, in gold and silver; 50 tons of ore on the dumps. ... Five Forks lode has a shaft 20 ft., from which 15 tons of what appeared to be good milling ore was in sight. ... Near by, Fee & Co. expect to erect a furnace, or furnaces, to work the ore from their mines. ... Champion lode averages 4 ft. in thickness. It crops out above ground for a great distance. ... Buckeye lode rich in silver, has been prospected by shafts. ... Savage, rich in carbonate. Shaft 8 ft. deep. ... Todd has rock yielding from \$300 to \$500 per ton.

**MINERAL PARK.**—Keystone lode appears to be the mother vein of this section. It crops out boldly for a long distance, and, on the surface is very thick. Two shafts, one 45 and the other 25 or 30 ft. from the surface, have been driven in the vein, at either of which the ledge, at its narrowest, is about 4 1/2 ft. thick. All the ore extracted was what may be termed rich sulphure ore, with, occasionally, free silver and gold. Water, of good quality, abundant in the deeper shaft. ... Stark and Ewing lode—chloride, horn silver, native silver and free gold are observed, scattered plentifully throughout the vein matter. The owners are sinking through the country rock, near the metal, which they soon expect to strike. ... Fairfield lode is 4 ft. thick, and very rich. The ore is free sulphure. The owners are hard at work sinking. ... Mayflower has a shaft 20 ft. deep. The lode is 3 ft. thick, and rich in silver and gold. ... Setting Sun lode is being prospected by an open cut, in which the body of ore was 4 ft. thick. This, at a depth of 12 ft. from the surface. The ore is "free milling," and pieces have assayed \$1,300 in gold and silver. ... Washington lode has a shaft 8 ft. in depth. ... Alabama prospected very slightly. Ore, carbonate. ... Richmond, a carbonate lode, carries 42 per cent. lead and 150 ozs. of silver to the ton.

**WOOD LANE** has a 14-ft. shaft. ... Philadelphia lode has a shaft 21 ft. in depth, developing a pretty ledge of rich quartz, and striking water. ... Cedar lode showed 2 1/2 ft. of paying ore, at a depth of 30 ft. ... Ku-Klux contains silver and gold in paying quantities. ... Herpison lode has on the dump 30 tons of good milling ore. ... On Porter lode, the owners have gone down 25 ft. and have taken out a huge pile of free milling ore. ... Defiance has a shaft 20 ft. deep. ... Panawa, a large galena lode is being prospected by an open cut. ... War Horse ledge, galena, 2 ft. thick. ... Rifleman is 4 ft. thick—free milling ore. ... Antietam has a 30-ft. shaft, and 2 ft. or more of silver-copper glance ore. ... Upon the Oriental, galena lode, is a shallow shaft. ... Into the Pride of Arizona, an open cut has been run, revealing a splendid looking mass of ore, some of which had yielded well in gold, silver and lead. ... Snaflower has a 3 ft. vein in a 20 ft. shaft—contains carbonates and argenteiferous galena in paying quantities. ... Conner lode of 4 ft.—contains carbonate and free milling ore worth from \$100 to \$700 a ton. ... "Daniel Webster" and "Dandy" lodes have undergone some piking, and are both looking well. ... Silver Hill lode has a shaft 125 ft. in depth, showing a 3 ft. ledge of galena and sulphure ore. ... Katy, another carbonate lode, is being developed. ... Empire, a large carbonate ledge, has assayed from \$100 to \$500 to the ton in silver. ... Starr King has a shaft yielding free milling ore. ... Independence shows well on top. ... In the Tecumseh lode, the croppings in places on the surface measured 11 ft., and pieces of top rock assayed \$500 to the ton.

**BRADSHAW.**—A recent run of 72 hours, with 5 stamps on Del Pasco ore, netted

between \$700 and \$800 of nice gold dust. One ton of Tiger ore, recently worked at S. F., yielded \$1,500 over and above the cost of transportation and working.

Colorado.

Work is being actively pushed on the Phoenix lode, Sherman Mt. A number of men are working the vein on leases and are doing well.

Guthrie lode, Republican Mt., is being worked in several places. A pile of good ore is on the dump.

Crystal lode, Virginia cañon, is being actively worked with good results. It is being opened by two parties.

**CLEAR CREEK Co.**—*Central Register*, Oct. 18th: Three months ago, 4 miners took a contract to run a tunnel to cut the Pelican lode. When it reached a point 40 ft. from the mouth, they cut a vein 6 inches thick of sulphure of silver. They began immediately to develop. They have made a handsome "stake." The ore runs about 600 ozs. to the ton, and is easily worked.

**GRAND ISLAND.**—*Central Herald*, Oct. 11th: Breed's Mill, at Middle Boulder is fast approaching completion.

Caribou mine is looking finely. In the bottom of the shaft there is an 8 ft. crevice of fine ore.

**IDAHO.**—Some 80 miners are employed at the Seaton, Queen, Santa Fe and Crystal lodes, above Idaho, and the quantity of silver is very rich.

In the Idaho mine near Caribou there are 8 inches of first-class ore in the bottom of the shaft, besides a large crevice of second and third class rock. It is reported that the mine is about to be sold.

Wild Waggoner tunnel is in 145 ft., the head of the tunnel being 65 ft. below the surface. The tunnel will follow the course of the vein for 1,600 ft., intersecting the discovery shaft 225 ft. below the surface, 400 ft. in. At this point it is crossed by the Lella lode, into which a branch tunnel will diverge from the main drift. The head of the main tunnel, when 1,600 ft. in, will be 417 ft. below the surface at that locality. On the surface the distance between walls is 17 ft. at the discovery, assaying from 9 to 13 ozs. At the bottom of the shaft, 80 ft. below the surface, the crevice material has a width of 25 ft. and 8 inches.

The Boston & Colorado Smelting works are treating about 30 tons of quartz and tailings per day.

Mr. Calbugh is mining near Georgetown and on the Crystal lode above Idaho most profitably.

Work continues steadily at the Hiawatha Tunnel near Mill city.

B. S. Buell has been raising large quantities of rich gold ore from the Illinois during the past month.

T. J. Sales, of the Edgar mine, informs us that the mine is looking finely.

The once celebrated Gunnell lode, after laying idle for several years, wears a lively appearance; 8 claims are now being worked.

Idaho.

**BULLION.**—Owyhee *Avalanche*, Oct. 14th: W. F. & Co. shipped from here last week 6 bars valued at \$11,417.74.

**SOUTH MR.**—Some of the ledges are 50 feet in width and traced for miles. The ore is argenteiferous galena, easily worked. Assays from various ledges range from \$20 to \$475 silver per ton.

**ITEMS.**—On the Ida Elmore two drifts are being run in the 5th and 7th levels respectively, north of the shaft. The width of the ledge is 3 feet.

The Minnesota shaft is down 140 feet. A contract has just been let to sink 100 ft. deeper. The ledge is 2 feet wide and contains good milling ore.

Utah.

**BULLION.**—S. L. *Tribune*, Oct. 20th: W. F. & Co. shipped to N. Y. Oct. 14th, of Pioche bullion, 20 bars, valued at \$48,027.15. On the 19th, 18 bars, worth \$50,905.28 from same place, and on the day previous 13 bars, worth \$15,258.

**HOWLAND & Co.** have shipped during the week 3 car loads of bullion to Chicago. They have sold their sampling works to Richmond, of Chicago. He designs purchasing ores in the mines, on the dump, and will add to the present facilities an amalgamating pan, for treating carbonate ores in large quantities.

**SATURN S. M. Co.**—This Co., in Bing-ham, shipped yesterday, 40,000 ft. of lumber to construct buildings for their hands. The Co. designs erecting 3 blast furnaces.

**UNIVERSITY OF CALIFORNIA.**—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught.

Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TART, Oakland, Master Fifth Class.

Mineral Stock Market.

THURSDAY EVE., Oct. 26th, 1871.

Stocks have been quiet throughout the week. The sales at this Board for the week ending on Thursday the 10th inst., aggregated \$3,749,580. Reports from the Crown Point mine are of a very favorable character. The San Jose Mining Co. levied their first assessment of \$5.00 delinquent on November 23d. The total amount of the assessment of the Golden Chariot is \$50,000, of which \$20,760 is yet unpaid. This last weekly report of the Hale & Norcross mine shows 730 tons extracted, and 2,600 tons on the dump; that of the Savage shows 550 tons taken out, assaying \$31.20. On October account over \$100,000 have been shipped from the Meadow Valley mine.

Comparative Prices, Extremes, Advance and Decline.

	Oct 19.	Highest.	Lowest.	Oct 26.	Adv.	Dec.
Alpha Cons.	290	287 1/2	—	—	—	—
Amador	335	332 1/2	—	—	—	—
Belcher	335	332 1/2	—	—	—	—
Buckeye	335	332 1/2	—	—	—	—
Chollar-Potosi	335	332 1/2	—	—	—	—
Caledonia	17 1/2	18 1/2	—	—	—	—
Con. Virginia	9	9 1/2	—	—	—	—
Crown Point	312 1/2	290	307 1/2	—	—	—
Danely	8 1/2	8	9 1/2	—	—	—
Empire Mill	—	—	—	—	—	—
Eureka Cons.	30	30	29 1/2	—	—	—
Eureka	14	14	—	—	—	—
Golden Chariot	15	15	10 1/2	—	—	—
Gould & Curry	112	112	98	—	—	—
Hale & Norcross	120	106	113	—	—	—
Ida Elmore	3 1/2	3 1/2	2 1/2	—	—	—
Imperial	25	45	25	—	—	—
Kentuck	160	15	145	—	—	—
Mammoth	—	75	145	—	—	—
Meadow Valley	32 1/2	36 1/2	31	36 1/2	—	—
Occidental	—	—	—	—	—	—
Opbir	24	25 1/2	22 1/2	—	—	—
Orig. Hid. Treas.	6 1/2	28 1/2	21	23	—	—
Overman	28 1/2	14 1/2	9 1/2	10	—	—
Pioche	14 1/2	14 1/2	9 1/2	10	—	—
Raymond & Ely	13 1/2	13 1/2	10	12 1/2	—	—
Savage	44 1/2	44 1/2	42	43 1/2	—	—
Sierra Nevada	—	—	—	—	—	—
Silver Wave	—	—	—	—	—	—
Wash. & Oreole	7 1/2	5 1/2	7	—	—	—
Yellow Jacket	60	60	57	58 1/2	—	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons.	300	—	Ida Elmore	3 1/2	4 1/2
Amador	332 1/2	—	Imperial	25	45
Belcher	332 1/2	—	Kentuck	160	15
Buckeye	332 1/2	—	Mammoth	75	145
Chollar-Potosi	332 1/2	—	Meadow Valley	32 1/2	36 1/2
Caledonia	17 1/2	—	Opbir	24	25 1/2
Con. Virginia	9	—	Orig. Hid. Treas.	6 1/2	28 1/2
Crown Point	312 1/2	—	Overman	28 1/2	14 1/2
Danely	8 1/2	—	Pioche	14 1/2	14 1/2
Empire Mill	—	—	Raymond & Ely	13 1/2	13 1/2
Eureka Cons.	30	—	Savage	44 1/2	44 1/2
Eureka	14	—	Sierra Nevada	—	—
Golden Chariot	15	—	Silver Wave	—	—
Gould & Curry	112	—	Wash. & Oreole	7 1/2	5 1/2
Hale & Norcross	120	—	Yellow Jacket	60	60

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME.	LOCATION.	AMOUNT	DAY	DATE OF ASSESSMENT.	DELINQUENT.	OF SALE.
Altona, O. Valley, Cal.	Oct. 21, 26	Nov. 7-Dec. 18	—	—	—	—
Argenta S. M. Co., Nev.	Sept. 1, 5	Oct. 7-Oct. 28	—	—	—	—
Alameda Coal M. Co., Cal.	Sept. 1, 5	Oct. 7-Oct. 28	—	—	—	—
Bellevue, Placer Co., Cal.	Aug. 30, 1	Oct. 3-Oct. 23	—	—	—	—
Buckeye, Lyon Co., Nev.	Sept. 1, 5	Oct. 10-Nov. 1	—	—	—	—
Daney O. & S. M. Co., Nev.	Sept. 1, 5	Oct. 25-Nov. 13	—	—	—	—
Gold Run M. Co., Cal.	Sept. 5, 25	Oct. 10-Nov. 1	—	—	—	—
Golden Chariot, Sept. 12, 25	—	Sept. 28-Nov. 13	—	—	—	—
Gould & Curry, Nev. Sept. 12, 16	—	Nov. 12-Nov. 23	—	—	—	—
Highland S. M. Co., Nev.	Oct. 9, 10	Nov. 12-Dec. 31	—	—	—	—
Ida Elmore, I. T., Oct. 19, 22	—	Nov. 24-Dec. 15	—	—	—	—
Imperial, G. Hill, Sept. 21, 10	—	Oct. 24-Nov. 1	—	—	—	—
Jackson, Lander Co., Aug. 30, 25	—	Oct. 4-Oct. 24	—	—	—	—
Julia, Storey Co., Nev., Aug. 31, 50	—	Oct. 4-Oct. 23	—	—	—	—
Keamsburg, Inyo Co., Cal., Oct. 21, 25	—	Nov. 27-Dec. 26	—	—	—	—
Keamsburg, Inyo Co., Cal., Oct. 21, 25	—	Nov. 27-Dec. 26	—	—	—	—
Mahogany G. & S. M. Co., I. T., Sept. 4, 10	—	Oct. 12-Oct. 31	—	—	—	—
Metropolitan M. Co., Nev., Sept. 1, 15	—	Oct. 16-Nov. 2	—	—	—	—
Nevada Land & M. Co., Nev., Oct. 12, 4	—	Nov. 11-Dec. 4	—	—	—	—
Orig. Hid. Treas., W. P., July 6, 2	—	Oct. 31-Nov. 22	—	—	—	—
Overman, Nev., Sept. 22, 34	—	Oct. 28-Nov. 16	—	—	—	—
Phoenix, Lander Co., Nev., Sept. 27, 50	—	Nov. 1-Nov. 21	—	—	—	—
Piermont, W. F., Sept. 4, 1	—	Nov. 9-Dec. 8	—	—	—	—
Reedbank, S. M. Co., Cal., Sept. 1, 5	—	Oct. 28-Nov. 1	—	—	—	—
Silver Wave, White Pine, Sept. 1, 1	—	Oct. 3-Nov. 3	—	—	—	—
St. Louis M. Co., Nev., Sept. 6, 3	—	Oct. 9-Oct. 26	—	—	—	—
St. Louis M. Co., Placer Co., Sept. 23, 60	—	Oct. 26-Nov. 13	—	—	—	—
South Eureka M. Co., Oct. 1, 25	—	Nov. 14-Dec. 11	—	—	—	—
St. Patrick, Placer Co., Oct. 18, 3	—	Nov. 22-Dec. 11	—	—	—	—
Union, Sierra Co., Cal., Sept. 22, 21	—	Oct. 23-Nov. 13	—	—	—	—
Washington & Oreole, Nev., Sept. 21, 60	—	Oct. 30-Nov. 25	—	—	—	—

MEETINGS TO BE HELD.

Crown Point South Ex. Co.	Annual Meeting, Nov. 6
Keamsburg	Annual Meeting, Nov. 6
Nevada Borax Co.	Meeting, Nov. 13

LATEST DIVIDENDS—(Within Three Months).

Black Diamond Coal M. Co.	Payable Sept. 15
Chollar Potosi, \$1.	Payable Sept. 9
Chollar Potosi, \$1.	Payable Oct. 1
Eureka Cons., \$1.	Payable Sept. 20
Eureka Cons., \$1.	Payable Oct. 20
Keystone M. Co., \$1.	Payable Sept. 18
Meadow Valley, \$1.	Payable Sept. 15
Meadow Valley, \$1.50.	Payable Oct. 13
Natoma, div. 1 per cent.	Payable Aug. 5
Natoma, div. 1 per cent.	Payable Oct. 5
Pioche S. M. Co., \$1.	Payable Sept. 15
Redington, 1 per cent.	Payable Aug. 6
Succor Mill and M. Co., 50c.	Payable Sept. 15
Succor Mill and M. Co., 50c.	Payable Oct. 16
Yule Gravel, 50 cts.	Payable Aug. 4
Yule Gravel M. Co., 50c.	Payable Oct. 5
Yule Gravel M. Co., 50c.	Payable Oct. 14

—Advertised in this journal.

**JOURNALIST.**—Mr. W. H. MURRAY, agent of the SCIENTIFIC PRESS and PACIFIC RURAL of S. F., is canvassing our town for those excellent papers. Mr. Murray was here last year and obtained large lists for the PRESS. He has since visited other Territories with like results, and now comes to introduce that other worthy exponent of an equally great interest—agriculture and stock growing. He will visit other camps of this county and Missoula in the course of a few days, to solicit subscriptions.—*New Northwest, Montana.*

**LADIES DESIRING TO PRODUCE A FIRST-CLASS SEWING MACHINE** against every monthly installment may apply to No. 294 Bowery, 187 E. 26th, 477 9th Ave., New York. Good work at high prices if desired. 21v1-12mbp

San Francisco Retail Market Rates.

FRIDAY, October 27, 1871.

MISCELLANEOUS.	
Butter, Cal. fr. D.	63 @ 70
Pickled, Cal. D.	45 @ 50
do Oregon, D.	40 @ 50
Money, Cal. D.	25 @ 30
Shoe, Cal. D.	20 @ 25
Eggs, per doz.	60 @ 65
Red June, per doz.	20 @ 25
Sugar, cr., 6 1/2 lb. 100	10 @ 13
Brown, do., 1 lb.	10 @ 13
Sugar, Map. D.	25 @ 30
Plums, dried, D.	15 @ 25
Peaches, dried, 1 lb.	15 @ 25

PRODUCE, ETC.	
Codfish, dry D.	8 @ 10
Flour, 100 lbs. 80	10 @ 12
Superfine, do. 80	10 @ 12
Corn Meal, 100 lbs. 80	10 @ 12
Wheat, 100 lbs. 25	10 @ 12
Oats, 100 lbs. 10	10 @ 12

FRUITS, VEGETABLES, ETC.	
Pine Apples, 1.50 doz.	10 @ 100
Bananas, 1.00 doz.	10 @ 100
Cal. Walnuts, D.	20 @ 25
Cranberries, 1 lb.	75 @ 100
Cranberries, 1 lb.	75 @ 100
Apples, Early, 1 lb.	50 @ 75
Red June, 1 lb.	20 @ 25
Pears, table, 1 lb.	75 @ 100
Plums, Cherry, 1 lb.	10 @ 12
Apricots, 1 lb.	12 1/2 @ 15
Moopark, 1 lb.	3 @ 5
Blackberries, 1 lb.	25 @ 40
Raspberries, 1 lb.	20 @ 25
Strawberries, 1 lb.	25 @ 40
Blackberries, 1 lb.	25 @ 40
Ranges, 1 lb.	30 @ 40
Lemons, 1 lb.	25 @ 30
Limes, 1 lb.	25 @ 30
Figs, dried, 1 lb.	37 1/2 @ 40
Asparagus, 1 lb.	37 1/2 @ 40
Artichokes, 1 lb.	6 @ 10
Russell's, 1 lb.	15 @ 20
Potatoes, 1 lb.	2 @ 3
Potatoes, sweet, 1 lb.	2 @ 3
Geese, wild, 1 lb.	10 @ 12
Cauliflower, 1 lb.	10 @ 12
Chicage, 1 lb.	10 @ 12
Carrots, 1 lb.	10 @ 12

POULTRY, OAME, MEATS, ETC.	
Chickens, 1 lb.	75 @ 100
Ducks, 1 lb.	75 @ 100
Geese, 1 lb.	75 @ 100
Tame, 1 lb.	10 @ 12
Goose, 1 lb.	10 @ 12
From Chicago, 1 lb.	25 @ 30
Hens, 1 lb.	75 @ 100
English, 1 lb.	25 @ 30
Venison, 1 lb.	12 1/2 @ 15
Pigeons, 1 lb.	12 1/2 @ 15
Wild, 1 lb.	10 @ 12
Hares, 1 lb.	10 @ 12
Rabbits, 1 lb.	10 @ 12
Wild, 1 lb.	10 @ 12
Wild Geese, 1 lb.	10 @ 12
Beef, 1 lb.	10 @ 12
Beef, 1 lb.	10 @ 12
Sirloin and rib, 1 lb.	10 @ 12
Corned, 1 lb.	10 @ 12
Smoked, 1 lb.	10 @ 12
Pork, 1 lb.	10 @ 12
Chops, 1 lb.	10 @ 12
Veal, 1 lb.	10 @ 12
Cutlet, 1 lb.	10 @ 1



## INDIFFERENT METALLURGY.

[From the Overland Monthly.—Concluded.]

The truth conveyed in the words of the Right Honorable Robert Lowe, Chancellor of the Exchequer of England, is certainly applicable to our case: "I think," says he, "it is more important for a man to know where his liver is seated, and what its functions are, than to know it is called *jecur* in Latin and *epar* in Greek."

The better acquainted a man who superintends or works a mine is with its peculiarities, the more successful and profitable will be the application of his labor. What we consider to be essential for the proper furtherance of the interests of the Pacific Coast, is the establishment of a mining-school for the efficient education of those intending to devote themselves to that particular business. And, inasmuch as it is evident that the principal feature in its future industries will appertain to minerals, does it not seem of the most vital importance that the rising inhabitant of the Occident should be prepared for the right and intelligent fulfillment of the duties which will inevitably fall to his lot? We must, sooner or later, arrive at the conclusion that it is.

The Chair of Chemistry and Metallurgy connected with our young State University, was, as originally established, a step in the proper direction. It was just the thing required by this pre-eminently metallurgical region, for it was undoubtedly the most important and indispensable branch of scientific education taught at the University. The beneficial effects it would have had upon the future working of our mines and the treatment of their products, would, in all probability, have exceeded the most sanguine expectations. It is somewhat strange that it should be viewed differently by the Regents. They evidently consider it of only secondary importance—a branch of science having but an indifferent bearing upon our future metallurgical prospects. By them, it has been thought best to abolish it as an independent professorship, and incorporate it with the Chairs of Agriculture, Horticulture, and Agricultural Chemistry. We cannot otherwise consider, than that, in so doing, they have acted unadvisedly. The wants that we have perhaps imperfectly expressed evidently demand that metallurgical chemistry, at least, should have remained independent. It is practically impossible for one Professor to fulfill faithfully the duties appertaining to two or more branches of scientific instruction. He cannot give to them that undivided attention which each one requires, ere it can be justly dealt with, especially when the student is more dependent upon the practical demonstration, than he is upon a theoretical explanation, for a right understanding of the instruction attempted to be imparted to him.

A practical knowledge of metallurgical chemistry—the only one of any value to the miner—can be obtained in the laboratory alone. The lecture-room, no matter how ably and intelligently it may be managed, is, nevertheless, only a place where the student obtains the theory which is to be demonstrated to him in the laboratory. The duties of one chair, consisting of theoretical and practical instruction, require all the time and energies of the tutor devoted to them, so as to fully demonstrate to the pupil the principles of that particular branch. In many European mining-schools, the Professors have demonstrated under their direct supervision, who illustrate in the laboratory the theories laid down in the lecture-room. Each department is thus complete and independent. As at present taught in the University of the State of California, the science of metallurgy is a nonentity to the Californian. Having lost its identity as an independent branch of education, it must fail to attain the object at which it professes to aim. Had it been otherwise, the instruction imparted could not possibly be as complete as that which would be given in a school of mines. A mining education, received in any University, cannot be of the same practical value as that obtained in a school making it its specialty.

For the establishment of such a school, San Francisco, or its vicinity, presents superior advantages. Its central position on the coast affords easy access to our various mining districts, and the student would be enabled to acquire a thorough knowledge of the manner in which their ores are extracted and reduced. The absence of such an institution has been seriously felt throughout our common country. Hundreds of millions of dollars now lie among the tailings of our mines, irrecoverably lost, owing to the want of a scientific knowledge of the ores when undergoing

treatment. It is to the efficiency of a school of mines, when once permanently established, that we shall be in a great measure indebted for the completeness of the success attending the future development of our metallurgy. Whether such instruction will ever be imparted with that singleness of purpose in the State University, or not, it will be found as valuable as a means of mental training as it is for practical application. All scientific study really makes the student more apt in the acquisition of other branches of knowledge.\*

We cannot fail noticing, also, the increased interest our mines are now commanding, through the facilities for the transportation of their products to market by the numerous railroads already intersecting the country, as well as by those proposed to be constructed, at an early date, through hitherto inaccessible regions of well-known mineral wealth. The mountainous character of many of our richest mining districts is such, however, that they cannot be penetrated by the broad-gauged railroads in common use. And the outlay of capital required for the construction of those already built has been so great, that their number and the extent of their usefulness have been necessarily limited. A new era in railroad history has happily dawned—one that promises to have a great influence upon the metallurgical prospects of the Pacific Slope. The satisfactory results obtained by the introduction of improved rolling stock, upon roads of extremely narrow gauges, are of such importance as to threaten to produce a complete revolution in the entire system of railroad construction. It is to our hitherto impregnable mining districts that we believe these narrow-gauged railroads are peculiarly adapted. The comparative nominal outlay of capital required for their construction, the limited wear and tear, and cost of working, will naturally cause them to be extensively introduced at an early date in all our mining districts, giving an impetus to our interests unparalleled in our past history.

\*At the last regular quarterly meeting of the Board of Regents of the University of California, held on the 6th of September, a communication was received from the Academic Senate, recommending the appointment of a competent Professor in analytical chemistry, mining, metallurgy, and mineralogy.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANES.

[Expressly for the Press.—Continued.]

Pure gold has a reddish yellow color and high metallic luster. It is quite soft, more so than silver, is extremely malleable and ductile. It does not dissolve in boiling nitric acid nor impart any color to it, but it is readily soluble in nitro-hydrochloric acid. It may be distinguished from all other substances by the following easily applied tests.

It is the only yellow metal or alloy which is malleable and not acted on by acids, and which fuses on charcoal before the blowpipe into a bright bead without incrustation.

When in sufficiently large pieces it may be recognized by being flattened out under the hammer and cutting with a knife without crumbling.

Gold when largely alloyed with other metals cannot be so easily distinguished as its associates somewhat modify the reactions. The color of native gold is degraded by the metals with which it is alloyed. In some localities it is found pale from admixture with silver, in others red from the presence of copper.

Native gold is usually found in scales, threads, plates and irregular masses, from a few grains in weight to many pounds. Although generally amorphous, it is frequently found in crystals, which usually assume some modification of the octohedron. Crystals of gold are never found large. Beautiful microscopic octohedra of gold are found in the Ida mine in Inyo county, Cal.

Many substances are mistaken for gold. Some varieties of mica resemble it in certain lights, so much so as at times to deceive the most experienced eye. Chalcocite or copper pyrites or even iron pyrites are sometimes mistaken for it; and wulfenite or molybdate of lead, quite common in Nevada and Eastern California, bears a perplexing resemblance to it. Ores differ from minerals, being composed of two or more minerals in different states of aggregation.

Gold is generally found native or alloyed with some other metal. Very few ores contain it in such form as to be regarded as mineral species, yet gold is found in this native state in nearly all the rocks and formations of the globe. It is one of the most widely disseminated of metals.

It is sometimes alloyed with fully one-half of silver, which was the case in a sample found in the Ophir mine in Nevada.

Rhodium gold is said to contain from 34 to 43 per cent. of Rhodium, but the highest authorities consider it doubtful.

Palladium gold is alloyed with from 5 to 6 per cent. of Palladium.

Sylvanite is a telluride of gold and silver; a rare mineral.

Nagyagit is a telluride of gold, lead and silver, with some copper and sulphur.

Gold is found native in the following minerals and gangues: Pyrites, chalcocite, pyrites, galea, blends, mispickel, tetradymite, native bismuth, stibnite, magnetite, hematite, baryta, fluor-spar, siderite, chrysocolla, opurites and granites. At Moccasin Creek, Tuolumne county, it is found in statistics, and in Plumas county, in obsidian.

Gold is as closely associated with iron in nature as silver is with lead. Probably no specimen of pyrites can be found which will not give at least traces of gold.

There are two methods of assaying gold. The chemical and the mechanical. By the chemical is meant any process by which the gold is made to enter into fusion or is dissolved and recovered to be weighed in a pure state. Chlorination as practiced at Grass Valley and elsewhere is a chemical assay on a large scale.

The mechanical assay is when the gold is obtained as it occurs in nature, and is therefore only approximative. Sluicing, hydraulic washing, milling and open prospecting are examples of mechanical assays on a grand scale. All true mechanical assays as practiced by the assayer or prospector are based upon the same principle.

Although many substances so resemble gold in the rock, yet when pulverized and washed down in a pan or hand spoon, the practiced eye instantly detects the difference. It is a saying among prospectors that "if there is any doubt it is not gold." And I may say here that although I intend to describe all the modes of assay, of gold bearing rock, yet I am firmly of the opinion that this only practical assay of gold is the ordinary method of prospecting by the common pan or horn spoon.

The skillful assayer will find no difficulty in ascertaining the amount of gold in the sample furnished him with the wisest accuracy, but so difficult is the sampling of ore containing gold that all results so obtained are only roughly approximative, and any miner who would venture any investment on the assay of a few specimens from a gold mine must be very ignorant or sadly deficient in judgment; it is my opinion that to assay of ore from a gold bearing mine is of any value unless a large quantity of the ore is sampled, or fifty tons or more properly worked in a quartz mill. The next best assay is a multitude of prospecting tests from various parts of the mine. This mode of prospecting is well understood among miners and mill men, considering which a brief description only will be necessary. As usually practiced a few pieces of quartz are put into an iron mortar and pounded as fine as can be in that rude way. The powdered quartz is put into an iron pan or horn spoon and washed down until only the heavier particles remain, which consist of sulphurets, iron sand, and gold if there is any. This pan is then partly filled with clear water which is caused by a peculiar motion (learned only by practice) to flow over what remains in the pan. Gradually the lighter portions are swept across the bottom of the pan, and the gold is seen as a sort of yellow fringe at the upper edges of the black sand and sulphurets. Some prospectors are exceedingly skillful and will perform the whole process almost in the same time I have consumed in writing it. Some ideas may be gained of the likelihood of the mine "to pay" from the amount of gold found in a number of such assays. It is found that any ore that will always show "the color," will pay to work in almost any part of California.

The process above described can be greatly improved upon by rejecting the iron mortar and substituting an iron plate upon which to pulverize the ore. The pieces of ore are to be laid on the iron plate, which should be at least three feet square, and broken with a hammer into pieces the size of a walnut. Then an iron ring is used to confine the fragments when they are further reduced in size, still using the hammer. The ring should be about three inches in diameter and an inch high; an iron muller is then used exactly in the manner that painters grind paint on a marble slab. The ore will be quickly and easily reduced to a powder, and can be brushed off on a large sheet of paper, an edge rising half an inch on three sides of the iron plate will be found an improvement. The ore should be sifted before washing through a sieve with meshes of 40 to the lineal inch; any portion not passing through the first time may be returned to the plate and quickly reduced to the proper size. As the gold being malleable may be reduced to thin plates by this process, and refuse to pass through the sieve, the last portion must be shaken from the sieve into the powdered ore and washed with it, ore so heated can be washed much more effectually than when it is only partly pulverized, and every particle of gold can be isolated and retained in the dish.

For washing gold, I use an evaporating dish about six inches in diameter, which I find more convenient than either the iron pan or horn spoon. Every mill should be provided with such an iron dish and muller as I have described. It will be found of daily use.

The difference in the fineness of California gold from different localities may be seen in the following analysis made by some of the most celebrated chemists of the United States

and Europe. Prof. J. D. Whitney gives the average fineness from 875 to 905. W. P. Blake states that this average was formerly 885 and has fallen to 865 to 870.

per cent.	Fineness.	per cent.	Fineness.	per cent.	Fineness.	per cent.	Fineness.	per cent.	Fineness.	Total.
75.86	758.6	20.87	208.7	0.26	26	2.44	24.4	98.97		
85.87	858.7	12.33	123.3	0.26	26	54	5.4	99.73		
88.75	887.5	8.88	88.8	.85	8.5	trace		100.08		
83.10	831.0	10.50	105.0			.20		99.80		
89.61	896.1	10.05	100.5					99.66		
90.01	900.1	9.01	90.1			.85		99.86		
90.33	903.3	6.80	68.0			1.10		98.23		
90.70	907.0	8.80	88.0			.38		99.88		
90.90	909.0	8.70	87.0			.20		99.80		
90.96	909.6	9.04	90.4					100.00		
92.00	920.0	7.00	70.0					99.00		
92.70	927.0	6.90	69.0			0.40		100.00		
93.63	936.3	6.47	64.7					100.00		
95.42	954.2	3.50	35.0					100.00		

## A New Grape Crusher.

Messrs. Schoenstein & Kleiu, two young mechanics of this city, have invented and procured Letters Patent through the Scientific Press Patent Agency for a grape crusher and stemmer, by which grapes taken in clusters from the vine can be crushed and the stems separated from the pulp during the operation. Our Washington agent reports the granting of this patent in the following humorous letter:

We take great pleasure, after our long wrestle with the Examiner to get it, in herewith forwarding the official announcement of the allowance of a patent to Messrs. Schoenstein & Klein for their grape crusher; and we hope it will be in time to use on the crop gathered the present autumn, so, that young California, "elevated" on the products of home vintage, may, in his "gaylarity," more than ever sing:—

"Was not the 'Gallo Widow'  
That turned my foolish brain,  
Nor the wine of any vineyard  
Found in Germany or Spain.

**RAPID SPREAD OF FIRE OVER DRY TIMBER GROUND.**—It seems almost impossible to many who read of the terrible destruction of life by the late fires in the timber regions of Wisconsin, to realize that there could have been no escape for the sufferers from their terrible fate. The difficulty of escape from such fires, however, will be reasonably realized if we accept as correct the statements with regard to the rapidity with which large fires sometimes travel under favorable circumstances for their spread. The Grass Valley Union gives us some information of a fire in the timber near that town, which is said to have traveled two miles in ten minutes, or a mile in five minutes. The Vallejo Chronicle of the 14th inst. speaks of a fire which broke out in the woods near Berryessa Valley, during the Northern of Thursday last, which traveled 15 miles in two hours, or at the rate of a mile in ten minutes. Escape from such fires or anything like such fires, if spread over any extensive tract, at right angles with the line of approach, would be impossible, with even a fleet horse. The above accounts may be exaggerated, but there is no doubt but that a large fire before a high wind, in dry timber, travels with amazing swiftness, by means of the great cloud of burning cinders which always precedes it.

**HONEY IN THE MOUNTAINS.**—The Plumas county National says that quite a large quantity of honey is now found in the woods near La Porte, and bee hunting is becoming a favorite pastime. Since the introduction of bees in this State, our immense forests are gradually being colonized by these industrious honey manufacturers, and such is the mildness, as well as the geniality of our climate, that they will multiply rapidly, and our land before long, like that of ancient Canaan, will be overflowing with honey, if not with milk.

**PREVENTING BEES FROM MIGRATING.**—One of our bee-keepers prevents his swarms from leaving his premises by killing all the "queens" but one in each hive, and then clipping one wing of each. If they then attempt to leave, they go no faster than the queen travels on foot, and are consequently easily hived. We are not sure whether this "cruel dodge" is new or not.



## USEFUL INFORMATION.

## Hints to Carpenters.

The *American Builder* believes that there is much labor in vain in the ornamentation of houses, especially wooden houses. It tells carpenters, before making and fixing a quantity of ornament, to be sure that it is good, and goes on to say: There are many things that you do, and many others that an architect—if there be one in the case—will often instruct you to do, which are neither tasteful nor in good construction. Of course there are exceptions. You may be sure of this, however, that the more elaborate with ornament and carving a building is, the more you are going on the wrong track. Real beauty consists not in added features but in the body of the work itself, and this fact should always be borne in mind.

The principle of carving wood for outside ornament is wrong. We would not say it is to be discarded altogether, but, still, we have that leaning. Cut work, and that of the simplest kind, is the best. Complexity in forms and ornament are mostly bad. It not only requires unnecessary labor to produce, but there is actually vexation in the mind of the spectator. When people see a thing that is crowded with intricate work, that it takes them trouble to make out, it is tolerably good evidence that such work is not exactly what is wanted.

Give great attention to the sizes and proportion of doors and windows, and pay especial attention to the construction; and never, if possible, conceal its principles, but let them form the basis of ornament. Moldings, cornices and miters are not to be put in exposed positions. It is surprising what an excellent effect can be produced by cutting, even with little or no molding or carving about a ship. How plain, yet how beautiful it is, simply because of its proportions and because—it looks like work.

## How Samuel Williston Made His Fortune.

The first manufacturer of buttons in the United States was Samuel Williston. While he was dragging along as a country store-keeper—his eyes having failed him while studying for the ministry—his wife thought her that she could cover by hand the wooden buttons of the time, and thus earn an honest penny. From this the couple advanced in their ambition until they had perfected machinery for covering buttons, the first employed for the purpose in the United States. From this sprang an immense factory, and then others, until Samuel Williston made half the buttons of the world. His factories are still running at Easthampton, coining wealth for the proprietor, and known to every dealer in buttons the world over. He is now between seventy and eighty years of age, is worth five or six million dollars, and has given \$400,000 to Easthampton, for a seminary and for churches, \$200,000 to South Hadley Female Seminary, and \$200,000 to Amherst College, besides lesser gifts.

**TO PREVENT THE MOULDING OF GUM ARABIC.**—It is well known that solutions of gum arabic soon become mouldy, and eventually sour, and finally lose all adhesive properties. To prevent this it has been customary to use creosote, carbolic acid, corrosive sublimate and other poisonous disagreeable agents, the cost of which, or their unpleasant character, has deterred persons from using them. We now see it stated that sulphate of quinine will serve the same purpose, without itself imparting any bad odor. The addition of a solution of a few crystals of this salt to gum arabic will prevent the formation of mould quite as effectually as carbolic acid, and by analogy it is safe to suppose that the same salt could be used in writing ink, mucilage, and possibly glue.

**SMOKERS** will be pleased to learn that large deposits of meerschaum have been discovered in Patagonia. Heretofore the supply of this material for pipes has been limited, the clay being found in Turkey, Greece, Asia Minor and the shores of the Mediterranean, in small quantities. A great many people fancy that their pipes are real "hydrous silicate of magnesia," that being the scientific name for the genuine meerschaum, when they are made of common clay colored, or of bread, and are foul with the fortieth smoking. As meerschaum are the healthiest pipes possible, the Patagonia discovery is to be rejoiced at.

## What are Rose Diamonds.

Rose diamonds are so called on account of the form in which they are cut, and were until lately but little used, except in the smaller sizes, to place in fittings where the space or depth was too small to admit of a brilliant being employed. The rose-cut diamond has however lately again come into fashion, and the prejudice which has been entertained against them arises in a great measure from the ignorance of the purchasers, who, when told that such a stone is a rose, imagine it to be no diamond, being unaware that roses and brilliants are identically the same stone cut into different forms.

The rose-cut diamond is very lively, and makes a great display at a small cost, roses being manufactured from pieces of "rough," which from their thinness are incapable of forming brilliants. They are infinitely more lustrous than those stones called spread brilliants, which, from their want of depth, are lustreless and glassy. The smaller sizes are sold in packets containing generally 500, and have to be handled with great care, as the breath suffices to blow them away, and the delicate edges are very liable to break. They have sometimes been made so small as to require 1,500 to weigh one carat; and, when the number of facets on each is considered, the delicacy and minuteness of the work may be imagined.

Roses are still sometimes used for watch jewelling, but rubies are now preferred. Large rose diamonds fluctuate considerably in value, and their price can never be depended upon. They are not much esteemed in Europe, and it would be impossible to give any precise value, although they are supposed to be worth as much as brilliants of the same weight.

The small rose diamonds, if under 40 to the carat, are worth 47 cents to \$2 25 each; and above that size and up to one carat, they fetch from \$59 to \$72.18 the carat. In the Green Vaults at Dresden, and in the treasure chamber at Vienna, may be seen some very large and fine rose diamonds.

## Queer and Vicious Fish.

Among the vast multitude of living beings which inhabit the waters of the globe, there are things beautiful, things ludicrous, and things horrible and fearful, beyond the power of pen to describe. Among the latter class may be included the scorpion fish, which, upon the authority of Dr. Francis Day, is so much feared and dreaded, that fishermen will cut the meshes of their nets, and lose their entire catch, rather than risk a wound from it. The fish inflicts its injuries by its dorsal fin, which is serrated, and until this is broken by means of a club or stick, no one acquainted with the character of the fish will venture to touch it with the hand. Another fish, called the crocodile fish, also inflicts frightful wounds with its spine. A fish is said to infest the mouth of the Amazon, which, although scarcely larger than the minnow of our fresh water streamlets, is so ferocious in its attacks upon the human body that it is dreaded even more than the crocodiles. The name of this little fish fiend is "candiru," and when it seizes hold of the flesh, which it never fails to do when occasion offers, it holds on with such a tenacity that it cannot be removed without tearing out a mouthful of flesh. Another fish of South American rivers is the "payara," which carries in its lower jaw two fangs, by which it cuts a gash as smoothly as could be done by a razor. The "caribe" is the vampire of South American streams. It scents blood so keenly, that the least scratch on the person of the bather invites its fierce attacks. It has sharp triangular teeth of great power, and, though no larger than the perch, is an object of dread to all who know its fierce character.

**RED NOSES.**—The French journals say that the Parisians are jubilant over the late discovery of Dr. Bernsie for the relief of red noses. By means of electricity he has restored a lady of rank to happiness, and changed her nose, a blooming rose, into a delicate lily.

THERE is on exhibition at the Institute Fair, in New York, a stone-center emery wheel, which is said to weigh two thousand pounds, the largest emery wheel ever known to be made.

THE most perfect lubricator is said to be pure plumbago, manufactured by the American Graphite Co.

## GOOD HEALTH.

## Take Care of the Liver.

A liver secretes each day about two pounds of bile, which contains a great amount of waste material taken from the blood. When the liver becomes torpid or congested, it fails to eliminate this vast amount of noxious substance, which therefore remains to poison the blood and be conveyed to every part of the system. What must be the condition of the blood when it is receiving and retaining each day two pounds of poison? Nature tries to work off this poison through other channels and organs, the kidneys, lungs, skin, etc.; but these organs become overtaxed in performing this labor, in addition to their natural functions, and cannot long withstand the pressure, but become variously diseased.

The brain, which is the great center of vitality, is unduly stimulated by the unhealthy blood which passes to it from the heart, and it fails to perform its office healthfully. Hence the symptoms of bile poisoning, which are dullness, headache, incapacity to keep the mind on any subject, impairment of memory, dizzy, sleepy, or nervous feelings, gloomy forebodings, and irritability of temper.

The perspiration becomes so irritating and poisonous that in connection with the vitiated blood, it produces discolored brown spots, pimples, blotches and other eruptions, sores, boils, carbuncles and scrofulous humors. The stomach, however, and other organs, cannot escape becoming affected, sooner or later, and costiveness, piles, dropsy, dyspepsia, diarrhoea, and many other forms of chronic disease, are among the necessary results.

How important then that the closest attention should be paid to the condition of the important organ named. Whenever any of the above symptoms are observed, go to your physician at once and get his advice.

## Bad Blood.

Draymen about breweries drink quarts, if not gallons of beer every day, and by the time they are forty-five, the commonest scratch of a pin on the hand will not get well for months; if the skin is abraded or scraped off by a misstep or other accident, a running sore is sometimes established for the remainder of life; it is because the blood is bad; it is poor, too thick, and even poisonous.

Persons have poor blood when it is observed that scratches and cuts and bruises are a long time in healing; and this should be a friendly warning to correct that condition of things, because it shows there is but little vitality, little stamina, and disease of some kind is impending, especially of the typhoid type, and recovery will be slow, doubtful, and in many cases not possible.

The first step to be taken in all cases to get rid of bad blood, is to spend a large portion of daylight out of doors in remunerative labor or agreeable employment, or journeying, on horseback being the best; this helps nature to work the bad blood out of the body, and at the same time gets up a good appetite and a vigorous digestion, which makes a poor blood to supply the place of the bad, and the man is well, without an atom of medicine or a dollar's expense.—*Hall's Journal of Health.*

**THE USE OF BUTTERMILK.**—Persons who have not been in the habit of drinking buttermilk consider it disagreeable, because it is slightly acid. There is not much nourishment in buttermilk, but the presence of the lactic acid assists the digestion of any food taken with it. Buttermilk is an excellent substitute for fruit in Winter, and is also very good in the spring toward keeping off that unpleasant complaint known as spring sickness. The Welsh peasants almost live upon oat-cake and buttermilk. Invalids suffering from indigestion will do well to drink buttermilk at meal times.

**BURNS AND SCALDS.**—Every family should have a preparation of flaxseed oil, chalk and vinegar, about the consistency of thick paint, constantly on hand for burns and scalds. A noted retired physician states that he has used it in hospital and private practice for the past forty years, and believes that no application can compare with it, as regards relief of pain and curative results.

**CHILDREN** of a weak and scrofulous habit should be allowed all the white sugar they desire. It improves digestion and strengthens the blood.

## Something About Teeth.

Why do some people's teeth come out more readily than others? The reasons for this are probably many. About the middle of last century Peter Kalm, a Swede, visited America and wrote sensibly about what he saw. He observed a frequent loss of teeth among settlers from Europe, especially women. After discussing and rejecting many modes of explanation, he attributed it to hot tea and other hot beverages; and comes to a general conclusion that "hot feeders lose their teeth more readily than cold feeders." Mr Catlin, who some years ago had an interesting exhibition of Indian scenery, dresses, weapons, etc., noticed that North American Indians have better teeth than the whites. He accounts for the difference in this strange way, that the reds keep the mouth shut, whereas the whites keep it open. The teeth, he says, require moisture to keep their surfaces in good working order; when the mouth is open, the mucous membrane has a tendency to dry up, the teeth lose their needed supply of moisture, and thence come discoloration, toothache, tic-doloureux, decay, looseness, and eventual loss of teeth. Mr. Catlin scolds the human race generally for being less sensible than the brutes in this respect, and the whites especially in comparison with the red. We keep our mouths open far too much. The Indian warrior sleeps, hunts and smiles with his mouth shut, and respire through his nostrils. Among the virtues attributed to him to closed lips, one is excellent—when you are angry, keep your mouth shut.—*Chambers' Journal.*

**FEAR OF DISEASE.**—The fixed idea of having heart disease, or other complaints, is a very common one. Physicians can easily tell whether the heart is right, just as you can hear whether a clock is right by its tickings and beatings. There are other very sure symptoms, well known to the profession. Many persons also fear they have a cancer in the stomach or liver; or a tapeworm, or some other dreadful malady; but generally these fears are the result of a disordered imagination, and groundless. People do a great wrong to themselves and their friends by giving way to and dwelling upon such ungrounded fears.

**LEAD IN WATER.**—The question is often asked:—"How small a quantity of lead in water will produce serious consequences?" According to the *Herald of Health* the one hundredth part of a grain to the gallon, when used for a long time, has been known to produce paralysis. As a general rule, however, such a small quantity does not produce any perceptible disturbance to the system. It is dangerous, however, to drink water, for any length of time, with one-twentieth of a grain to the gallon.

**DEATH FROM MULBERRIES.**—Five persons have recently been found dead in Mississippi under mulberry trees. Death in all these cases has been attributed to eating mulberries which have been impregnated by locusts. In the stomach of one colored boy, says the *Woodville Republican*, was found a quantity of mulberry seeds and the locust eggs. Two children in Williamson County are also reported to have died from eating plums similarly impregnated.

**MEDICAL PROPERTIES OF COCOANUT MILK.**—In India, according to a writer in the *London Pharmaceutical Journal*, the milk of the cocoanut is employed in debility and incipient phthisis, as a substitute for cod oil, with excellent results. It is also used, instead of cow's milk, in tea and coffee. In large doses, it acts as a substitute for castor oil.

**WIND IN THE STOMACH.**—A physician, in a very sensible article on bathing, recommends a more general use of warm baths instead of the syrups and worse nostrums for the wind in the stomach, which is thought to be so often the cause of the worrying restlessness of the very young.

**TO DISGUISE CASTOR OIL.**—Rub up two drops oil of cinnamon with an ounce of glycerine and add an ounce of castor oil. Children will take it as a luxury, and ask for more.

**TO PREVENT DISCOLORATION FROM BRUISES.** Apply repeatedly cloths wrung out of hot water or the tincture of arnica.



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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### San Francisco:

Saturday Morning, Oct 28, 1871.

### Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, October 25, 1871.—Legal Tenders buying 89; selling, 89½. Gold in New York to-day, 112.

### Table of Contents.

Mining Map of Utah—III.; Important Mining Suit; Tin in Utah.....	257
MECHANICAL PROGRESS.—Floors for Workshops, etc.; Washing of Canal Banks; Testing Silvery Coating of Metals.....	258
SCIENTIFIC PROGRESS.—The Nature of Comets; The Five Races of Men; Use of Chloride of Iron in Metallurgy.....	258
Mines on Lander Hill, Nevada; Slate Books; Manhattan Co.'s Mill and Furnace; San Diego Mines.....	259
MINING SUMMARY—Stock Exchange and Market Reports.....	260-61
Indifferent Metallurgy; On the Assay of Gold; New Grape Crusher; Rapid Spread of Fire over Dry Timber Ground.....	262
USEFUL INFORMATION.—Hints to Carpenters; What are Rose Diamonds? Queer and Vicious Fish; Good HEALTH; Take Care of the Liver; Bad Blood; Something About Teeth; Lead in Water.....	263
Chemistry of the Washoe Process; Annual Report of the Eureka Mine.....	264
California Gold Mines; Wingard's New Construction of Vessels—III.; Decease of Distinguished Scientists; NOTICES OF RECENT PATENTS.....	265
Domestic Economy; Domestic Receipts; Mechanical Hints; Life Thoughts.....	266

**IRREPARABLE LOSS.**—One of the greatest losses to the public by the recent fire which destroyed a large portion of the city of Chicago, was the destruction of the library of specifications of British patents, consisting of 1,500 large volumes. This loss will be more severely felt for the reason that it is impossible to replace the library, as the British Government have disposed of the last set of Reports that they can spare. There still remains in the United States, a library of these Reports in the following institutions: United States Patent Office, Washington City, D. C.; Astor Library, N. Y.; State Library, Albany, N. Y.; Franklin Institute, Philadelphia; Free Library, Boston; Philadelphia Library Co.; Peabody Institute, Baltimore; Historical Society, Madison, Wisconsin; Cornell University, Ithaca, N. Y.

**NO USE FOR SQUIRREL SKINS.**—A subscriber writes us from Sacramento, enclosing a clipping from a newspaper in which it is asserted that there are parties in this State buying squirrel skins for the manufacture of gloves, etc. We have already, several weeks ago, pronounced the item without foundation. Glove-makers have no use for squirrel skins; they are too small for such or any similar manufacture. Farmers will do well to keep on killing the squirrels; but they will lose their time when they preserve their skins in the hope of a sale for the same.

**ANTIMONIAL ORE** to be marketable, must contain at least 60 per cent. of antimony. If of good quality, that yielding from 65 to 70 per cent. will find a market at from \$37.50 to \$42.25 per ton on the usual conditions of ore shipment.

## CHEMISTRY OF THE WASHOE PROCESS.

[Concluded.]

### VIII—Mercury with other Metals.

Mercury and iron, under the proper conditions, undoubtedly are the principal agents in the extraction of the precious metals by the Washoe method. The results depend, however, in a great measure, upon the mechanical treatments employed in pulverizing the ore very finely and in maintaining, with a proper degree of consistency, a constant agitation of the entire mass; the essential conditions of the amalgamation being that the mercury should be thoroughly incorporated in the pulp and every particle of the reducible minerals brought into direct contact and triturated with the metal. The mercury should also always retain a bright, clean surface, free from any coating of metallic salts, such as calomel or sulphate of lead, and any coating of oil or grease. The slightest tarnish appears to retard greatly its activity. The iron seems to act as an electro-chemical agent, the immediate contact of the two metals, aided by heat and friction, causing a local electric current, which adds to the amalgamating energy of the mercury.

Mercury, when perfectly pure, does not apparently amalgamate or decompose other bodies so readily as when holding a minute quantity of some foreign metal in solution. It would appear that the yield of gold is increased by the presence of silver; also that the latter metal is more readily extracted if a considerable portion of amalgam is already present. Some state that silver is better absorbed when copper is employed, and as the former is amalgamated the latter is expelled. Both iron and copper cause the formation of copper amalgam. On the other hand, sulphate of copper exhibits a tendency to drive out lead and also, according to Karsten, zinc and antimony. Sodium amalgam rapidly attacks gold, silver and silver compounds, yet its practical application did not give results which would warrant its general introduction.

Although the presence of a small quantity of several metallic bodies enhances the amalgamating energy of mercury, yet a slight excess sickens it. The peculiar phenomena attending the mercury, by which both electro-positive and electro-negative metals are absorbed, and the effects which they produce in increasing or neutralizing its action, are very little understood.

### IX—Loss of Mercury.

The loss in quicksilver during the operation arises from two sources, one mechanical, the other chemical. The latter is occasioned by the formation of the chlorides of mercury, which escape with the tailings.

In the patio process the chemical loss is often very considerable, large amounts of salt and magistral being present but no agent to reduce the calomel formed. The loss is said to increase in proportion to the richness of the ore in silver sulphurets, owing to the fact that for every atom of chloride of silver reduced by the mercury a corresponding atom of the latter metal is consumed as sub-chloride.

In the Washoe process the chemical loss would seem to be small in proportion to the whole consumption. This is probably due to the effects of the iron, which combines with the chlorine of the calomel, setting the mercury free.

The more the metal is ground, the more it must be cut up and the greater the difficulty in recovering it. Now, if the consumption of iron is assumed to measure the grinding effect of the pan, the relation between loss of mercury and loss of iron should be, in a certain degree proportional. The following table, compiled from the results of several mills, furnishes some in-

teresting details in regard to the loss of mercury. Part I shows that it is independent of the consumption of chemical agents. Part II that it is in some measure dependent upon the consumption of iron in the pan.

PART I.					PART II.				
Tons of Ore.	Foundry Sulphate of Soda.	Foundry Sulphate of Iron.	Foundry Sulphate of Copper.	Foundry Sulphate of Zinc.	Tons of Iron.	Foundry Sulphate of Iron.	Foundry Sulphate of Copper.	Foundry Sulphate of Zinc.	Foundry Sulphate of Lead.
4,400	0.33	0.15	1.54	8.79	9.42	1.54	1.54	1.54	1.54
8,605	0.33	0.15	1.54	8.79	9.42	1.54	1.54	1.54	1.54
4,713	0.23	1.52	1.34	8.29	9.42	1.54	1.54	1.54	1.54
35,000	9.00	3.00	1.33	7.50	9.42	1.54	1.54	1.54	1.54
7,223	1.33	1.33	1.33	7.14	9.42	1.54	1.54	1.54	1.54

The following is an analysis of some artificial crystals of Washoe amalgam:

Mercury.....	75.04
Silver.....	24.18
Gold.....	.77

They have very nearly the composition of 3 atoms of mercury to 1 of silver.

### X—Concluding Deductions.

From the foregoing considerations of the principal features of the Washoe process it appears:—

That the ore consists chiefly of native gold, native silver and argentiferous sulphurets, associated with varying proportions of blende and galena.

That the action of chloride of sodium (salt) and sulphate of copper in the pan produces chloride of copper.

That the presence of metallic iron necessarily causes the formation of the sub-chloride of copper.

That both the chlorides of copper assist in the reduction of the ore by chloridizing the sulphurets of silver, and in decomposing the sulphurets of lead and zinc.

That sulphate of copper enhances the amalgamating energy of mercury by causing the formation of a small quantity of copper amalgam. It also tends to expel the lead.

That notwithstanding the importance of chemical agents, as above indicated, the quantities added to the pulp in the ordinary practice of Washoe mills are too small to give any very beneficial results.

That mercury and iron, aided by heat and friction, are the principal agents in the extraction of the precious metals by the Washoe process.

That the essential conditions in the amalgamation of the gold and silver are that the mercury be kept perfectly bright and pure, in order to produce a direct contact of that metal with the iron and sulphide of silver.

That the consumption of mercury in the Washoe process may be considered chiefly a mechanical and only to a limited extent a chemical loss.

### New Mineral Discoveries.

**RICH STRIKE IN PLUMAS.**—We learn that considerable excitement exists in Mohawk Valley and vicinity, over a strike in quartz. The character of gold in the surface diggings indicated the existence of a ledge near by and on prospecting a vein of quartz two feet wide was found. The shaft is down 15 feet and the lode is increasing in width and richness. The rock all shows free gold in profusion. Quite a number of persons are prospecting now, and it is probable that a new and valuable quartz district will be opened.

**GOLD IN THE STREETS.**—A rich quartz ledge has been discovered in the main street of West Point, Calaveras county. The discovery is creating considerable excitement.

**GOLD IN SAN DIEGO COUNTY.**—A. J. Talbott reports having discovered a ledge near the Colorado river, in San Diego county. Samples of ore from the vein have an estimated assay value of \$200 per ton in gold. The lode is said to be eight feet wide.

**WILLIAM E. BARRON**, well known from his connection with the mining and commercial interests of California, and one of the proprietors of the Almaden quicksilver mine, died at his residence in this city, on the 25th inst.

## Annual Report of the Eureka Mine.

The Annual Report of the Eureka Gold Mining Co. of Grass Valley, Nevada Co., Cal., for the fiscal year ending Sept. 30th, 1870, has been laid on our table. This mine has long been favorably known as a very productive gold quartz lode, though recently the grade of ore has been very low.

The report of Superintendent Watt for the year ending Sept. 30th, shows 17,447 tons of quartz extracted. The amount of ore crushed was 18,560 tons in 305 running days with a 30-stamp mill. Only 15 stamps are now being used on account of a scarcity of water. There were 950 feet of drifting and cross-cutting made. The main shaft is sunk 849 feet on the ledge, or 786 feet vertically, of which 120 feet was sunk and timbered during the past year besides re-timbering 110 feet and sinking 200 feet of winzes. From the financial statement of the Secretary, we condense the following:

Receipts, including cash on hand, bullion, sulphurets, etc., \$651,708. Disbursements, including mining and milling account, etc., \$625,840, of which \$360,000 were paid out as dividends to stockholders. The company have no liabilities and the assets aggregate, with cash on hand, \$127,477. The average yield of the ore for the year was \$30 per ton, and of this sulphurets, \$158.23. There were 275 tons of sulphurets worked during the year. The average cost of mining the ore was \$8.82, and the average cost of milling, \$2.02, or a total of \$10.84, leaving a profit of \$19.16 per ton. The average cost of concentrating sulphurets was \$15.88, and of reducing the same, \$22.19, or a total of \$38.04, leaving a profit of \$120.19 per ton. The net profits on the operations of the mine for the year were \$330,763, or nearly \$30,000 less than was paid in dividends, showing a draft to that extent on the surplus carried over from the previous year. The mine went into operation on the 1st of October, 1865, since when the receipts have been \$3,382,343, of which \$3,363,234 was from bullion taken out. The disbursements for the same period were \$3,342,495, of which \$1,694,000 was in dividends to stockholders, \$133,105 for construction, \$1,219,492 for mining, milling and other current expenses, and \$295,898 for mines.

No dividends have been paid since July, and there is no immediate prospect of a resumption of dividends. On the 1st inst. there were 85 tons of quartz on the surface and 950 tons broken in the mine, ready for hoisting, the value of which, as put down in the assets, is \$9,129. The Company hope to crush a sufficient quantity of ore to meet current expenses until new bodies can be discovered and opened.

### Notes on Contributions to our Cabinet.\*

No. 529.—Is a piece of native copper from the Central Pacific ledge, Snecor Mining District, Utah Territory, about 4½ miles from Tecoma, on C. P. R. R. The lode at present looks to be of great value, and the piece of copper sent us is most assuredly a beautiful specimen.

No. 530.—This is a specimen of argentiferous galena from the "Mountain Sheep" lode, within a few feet of the lode above mentioned. It is rich in silver and lead, but is otherwise not particularly remarkable. Both specimens are with the compliments of Mr. Jas. Campbell.

\*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

Our first page illustration last week, should have been credited to our excellent cotemporary, the *American Artisan*.



## California Gold Mines.

[Written expressly for the Press.]

It is but recently that Quartz Mining in California has been considered strictly a legitimate business. Hitherto it has been looked upon by capitalists and business men as *extra hazardous*, but by improved systems of working, both mines and ores that a few years ago paid "Irish dividends" are now made to pay handsome profits; shrewd business men are now on the lookout for, and investing daily, in our California gold mines. The experience of 20 years has taught us, that mining should be conducted with a strict regard to economy, and that inexperienced men as managers of mining properties, are bad pilots to successful issues; it is to-day the paramount interest of the State, and the gold-product will soon be largely in excess of all other industries.

It is a trite old adage that "it is an ill-wind that blows nobody good." I truly sympathize with the sufferers by the late fires in the Atlantic States, but the lesson will be sure to teach our capitalists and business men that there are other and safer investments than bonds, mortgages, bank and insurance stock. Floods destroy real estate—a Government patent will not hold it—cities, towns and fire-proof buildings burn down—insurance policies will not cover the losses; bank and insurance stock cannot always be realized on; while a good mine, well administered, neither burns down or bursts up. I was forcibly reminded of this a few days since, when a prominent mine-owner of one of the best mines in this State, came down to adjust his losses, the earnings of his mine for the past ten years, amounting to \$250,000, had all been swallowed up. By the advice of a shrewd business friend of his, he invested in insurance stock and lost, he told me that he had his mine left yet, but no more so-called legitimate investments for him; henceforth his surplus earnings would go into Mines.

Having been in this country since '49, and identified with its interests, both mineral and agricultural, I have been a close observer of the fluctuations and changes in the several interests of placer and vein mining, in prosperity and adversity; farming lands and real-estate in cities, at fabulous prices and sold for a song. At one time, stock-raising was considered the most prosperous and profitable business in the country; a drouth followed, and the stockmen were ruined. To-day, mining bids fair to be the paramount interest, when all fails "we go back to our first love," who has remained true to us, and receives us kindly; this branch of business has undoubtedly been much neglected, but is now being revived in all our mining counties. We hear daily of new mines discovered and old mines re-opened, proving profitable investments. As an illustration, I will cite Placer County, only twelve months ago one of the most demoralized and played out counties in the State, grass growing in the streets of the county seat—Auburn—when one of our prominent citizens, a live man and a judge of mines, passing through the county, was asked to look at some mining properties; he looked, and invested in the "St. Patrick," which has proved a success. Other mining enterprises were inaugurated. Real estate advanced 300 per cent., and mine owners soon found ready sale for properties known to have values, but valueless to the holders, they neither having the means or ability to work them. I had occasion recently to visit Auburn, and was agreeably surprised at the change a few short months had made. I will particularize one of the many prosperous mines that were being developed, as it used to be an old favorite of mine in early days, and has paid me many a big dollar. It was then known as the

Buckeye.

with a parallel lode 30 feet distant called the "Big Vein" or the "Elizabeth."

It used to be worked by shafts from 30 to 50 feet deep, or until water or hard rock was reached, then the shaft would be abandoned and another sunk. In that way it was prospected or worked, for about 1,600

feet in the two veins to the depth stated; the ore taken out paying from 30 to 100 oz. per ton by Arastra reduction. The Fraser River excitement broke out and the owners all sold out or abandoned their claims. Fred. Jones, formerly of Grass Valley, with some San Francisco capitalists, recently bought the entire hill containing eight parallel lodes within a compass of 300 feet at right angles, and extending on their line of strike 2,500 feet easterly and westerly, dipping northerly; all true fissure-veins cutting the formation, which is gneiss (diorite) and metamorphic slate. The veins are small, say from 12 to 30 inches thick, but carry uniform ore of a very high grade, working by mill-process from 35 to 50 oz. per ton. The concentrated sulphurets assay from \$434—the lowest—to \$17,000 per ton. The superintendent, Mr. F. Jones, has inaugurated systematic workings by shafts and levels, and erected good hoisting works, etc., in fact has made a mine of what

## Wingard's New Construction of Vessels.

It has long been a recognized fact among engineers, ship-builders, and sailing-masters that a flat-bottomed or scow-shaped hull for a vessel under certain circumstances of construction, the secret of which was a mystery, was better suited for fast sailing than the ordinary deep and sharp model now used. This was sufficiently proven by the P. M. Randall, the vessel which held the position of the fastest sailer on the waters of our bay, and which in every race out-eailed the finest modeled vessels which were pitted against her for speed.

Mr. Wingard believes that he has discovered the secret of constructing the scow-shaped hull, upon fixed and permanent rules, so as to combine the natural

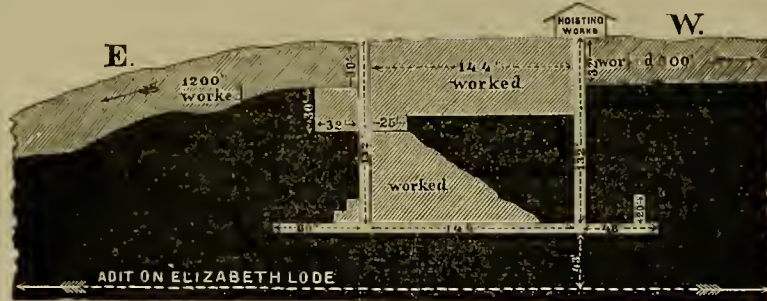


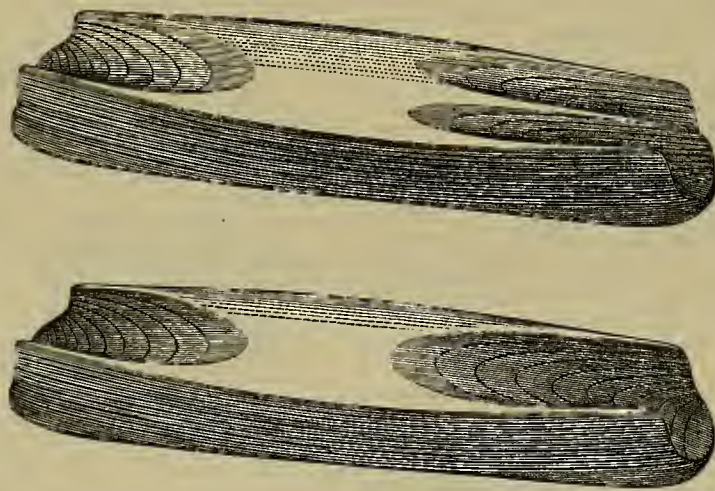
DIAGRAM OF THE BELLEVUE MINE.

was only holes in the ground; he invited me to go through; I went, and what I saw is shown in the accompanying diagram.

Since purchasing he has taken out and milled 200 tons of ore, which was extracted at an expense of \$8 per ton and paid \$35 per ton. He has nearly 400 tons on the dump ready for milling that he estimates as worth \$40 dollars per ton. He is driving an adit level from Doty's ravine (now in 123 feet with 50 feet of backs) on the "Elizabeth lode" 30 feet from the Bellevue mine north, parallel with it and 1,500 feet from the main shaft of the Bellevue on the line of strike of the lode. This level when oppo-

advantages of the flat-bottomed hull with those of our sharper built vessels.

The engravings presented herewith represent his plan of construction. The forward end of the boat may be provided with two or three cutwaters and the intermediate space between them is hollowed out upon an incline, so as to extend a short distance toward the middle of the bottom, where it gradually merges into the flat-bottom as shown. The cutwaters are constructed upon fine lines, and the intermedi-



WINGARD'S NEW CONSTRUCTION OF VESSELS.

site the Bellevue shaft will drain the eight mines to a vertical depth of 175 feet. A cross cut driven north and south will tap all the lodes and furnish many thousands of high-grade ores. I visited this level and in the face or end of the drift broke from the vein which was from six to eight inches thick, and what is known as ribbon rock, rich specimens containing more gold than quartz; the parallel ribbon adjoining showed bunches of wire and horn silver, then came a ribbon of massive sulphurets, containing galena, blue sulphurets, silver, and sulphurets of iron; so much for knowing how to work a mine. The formation is kindly, country rock easily worked, drifts driven for \$6 per foot and shafts sunk for \$12 per foot. I particularize this as a notable instance of a successful mining enterprise. But a few months ago the mine had no apparent value; to-day its values assume mammoth proportions. This is no isolated instance, there is not a mining county in the State that has not more or less now abandoned mines that could be made to show as good results as the Bellevue.

ate channel is made on regular curves so that as the vessel advances the water will be drawn through the channel to the middle of the bottom and thus buoy up the vessel. The stem of the boat is provided with two cutwaters with an intermediate channel which serves to free the water from under the vessel. In seagoing vessels three of the cutwaters at the forward end will be preferable as the center one will serve to break the force of a quartering wave.

The general appearance of one of these vessels, when seated in the water, will be equally as pleasing as the ordinary deep hulls, as its outline can be made upon regular and uniform curves.

Vessels of this construction are more particularly adapted to the shoal waters of our inland rivers on account of their light draught.

By thus constructing the hulls of vessels

there will be less displacement of the water, and consequently less resistance to the forward progress of the vessel, and by being constructed upon sharp lines and in the peculiar manner above described, it is anticipated that it will be capable of carrying a greater weight with increased speed and draw less water than vessels of the ordinary construction. A patent has been obtained for this invention through the SCIENTIFIC PRESS Patent Agency, by Adam Wingard. For further information address the patentee, T. B. Wingard, 318 California street, San Francisco, Cal.

## Decease of Distinguished Scientists.

We are called upon, this week, to announce the death of two leading men in the scientific world:—Charles Babbage, the eminent mathematician and Sir Roderick Murchison, the great geologist, geographer, and natural philosopher.

SIR RODERICK I. MURCHISON, was born at Faradale, Ross-shire, Scotland, in 1792. He received a portion of his education at the Durham grammar-school and entered the military college at Marlow, in 1805, leaving it two years subsequently on receiving a commission in the army. In 1828 he accompanied Sir Charles Lyell in a geological tour among the extinct volcanoes of Auvergne. After exploring the Eastern Alps he published a memoir on the subject, accompanied with a geological map in 1829. In 1835 and 1839 he explored the Rhenish provinces, and in 1840, in company with Mr. de Verneuil, a French geologist, he set out for Russia to investigate the geological formation of that country, hitherto very little known.

He published the result of his several expeditions in a magnificent volume, entitled "Geology of Russia and the Ural Mountains." His principal work, and that best known to the American public, is "Siluria: the History of the oldest known Rocks containing Organic Remains, with a brief sketch of the Distribution of Gold over the earth," published in 1854. He predicted the existence of gold mines in Australia long before they were discovered. His hypothesis of the configuration of the African continent received confirmation by the discoveries of Dr. Livingstone.

Sir Roderick Murchison was at the time of his death President of the British Geographical Society and Director-General of the Geological Survey, as well as a member of various scientific societies throughout the world. He always manifested great interest in the Gold Fields of California and took much pains to gather information on geological subjects connected with our State.

CHARLES BABBAE is best known as the inventor of a calculating machine, which is intended to substitute for mental calculation, the more precise principle of mechanism. After a tour in Europe with a view of studying the various pieces of mechanism employed in the arts, he published his "Economy of Manufactures and Machinery." He was appointed, in 1828, Professor of Mathematics at Cambridge University. He introduced his calculating machine in 1833, and its value may be estimated from the fact, that a table of logarithms of all natural numbers, ranging from 1 to 100,000, was produced, free from error, by its agency. Mr. Babbage was a member of nearly all the learned societies of Europe and America. He was one of the founders of the Royal Astronomical Society, and of the British Association for the advancement of science. *Omnes una manet nox et calcanda semel via leti.* "There remains a common night to all, and the path of death must by all be trod."

SEEDING COMMENCED.—A large number of farmers have been engaged in dry sowing on the light, dry soil of the San Joaquin Valley for the last three weeks.



## DOMESTIC ECONOMY.

### Coffee Should be Drank Without Milk.

According to the Société Impériale et Centrale d'Agriculture de France, coffee is an excellent aliment which suits most ages, temperaments, and constitutions, and of easy digestion when its consumer is in good health; it is also known that black coffee without milk is a stimulant and tonic whose intervention is advantageous after a repast to facilitate digestion.

Milk is undeniably wholesome and nutritious. Milk and coffee taken separately, not to interfere with each other in the stomach, are excellent; but, what is remarkable, when mixed and taken together they constitute a new composition which is absolutely indigestible.

This requires an explanation: The skin of animals is a nitrogenous matter which by boiling becomes a digestible product; if it be put in a fresh condition in contact with tannin it is converted into leather, when it may no longer be turned into alimentary aliment; no amount of boiling will do it. Gelatinous substances, put in contact with the tannin, are affected like the skin; they unite with it and acquire the property of resisting the effect of the gastric juice.

Now the infusion of coffee is rich in tannin, hence its mixture with milk has the immediate result of transforming the caseous part and the albumen that it contains into a kind of leather, undecomposable and indigestible, like that made in a tan pit. The composition thus produced remains in the stomach until new aliments come to displace and force it through the lower orifice of the stomach into the intestines. The sugar and bread with which this mixture is charged digest all the same, as well as the gelatinous substances, if the coffee is not used in such quantity as to render them inert.

The stomach is thus ballasted with a kind of thin milk, in which the gastric juice that it secretes constantly is quickly diluted in weakening its stimulating action on the membranes from which it comes, and the result is that the want of food makes itself more slowly felt; for this want, in general, is only developed when the stomach is empty. The consumer is thus deceived by the feeling of his stomach.

The use of this mixture is sometimes attended with disagreeable results. Those who are not accustomed to it frequently undergo a purging through indigestion, and those who are, often eventually have inflammation of the stomach or one of the maladies to which this organ is subject under the abuse thus put upon it. Women especially, from their delicate organization, suffer in the consumption of coffee with milk. To dissuade them from its use it would be well to make them understand that coffee with milk is nothing in reality but *leather soup*.

**TO CLEAN CARPETS.**—Shake it well; tack it down, and wash it upon the floor; the floor should be very clean; use cold soap suds; to three gallons add half a tumbler of beef-gall; this will prevent colors from fading. Should there be grease spots, apply a mixture of beef-gall, fuller's-earth, and water enough to form paste; put this on before tacking the carpet down. Use tacks inserted in small leather caps. In sweeping carpets use a soft brush. When it can be done, use straw matting (not straw) under the carpets; they last much better. Cover bricks with carpeting; put behind doors to prevent the knobs of locks striking against walls.

**FRENCH MODE OF FRYING POTATOES.**—Cut them in whatever shape you wish, above a bowl of cold water, so they will drop into it. Then drain and wipe them dry. This must be done quickly, so as not to allow the potatoes to become reddish. Have a coarse towel ready, then turn the potatoes into a colander, sprinkle salt on them, and serve hot. If you wish them light or swelled, leave the potatoes in the colander only about half a minute, then put them back in the very hot fat, stir for about a minute, and put them again in the colander. If the fat is very hot, when dropped into it for the second time, they will swell.

**CLEANING TINWARE.**—An experienced housekeeper says the best thing for cleaning tinware is common soda. She gives the following directions:—dampen a cloth and dip in soda and rub the ware briskly, after which wipe dry. Any blackened ware can thus be made to look as good as new.

### Horse Meat in Paris.

Horse meat was largely used in Paris several years before the late siege of that city. M. Duroix states that in July, 1866, horse meat was allowed to be sold publicly in Paris. Six months after this, its official introduction, not more than a dozen horses were slaughtered each week. Two years later about eighty were killed every week, and about fourteen butcher shops were engaged exclusively in its sale in the capital. From investigations made by Paris authorities, the horse yields a percentage of meat to his live weight of 65 to 70, which is more than that obtained from the ox. The price of the meat varies according to the pieces—tenderloin, at the time alluded to, was one franc per pound; and pieces of the neck and breast, five sous per pound.

In 1868 there were in Paris four restaurants of horse meat, and five establishments where sausage was made from horse flesh, and sold at half the price of other sausage.

The provinces were even then beginning to follow the example of Paris in slaughtering and selling horse meat. There was much less prejudice against its consumption than when it first commenced.

The horses slaughtered were generally old and worn out, but free from internal disease. When reasonably fat the meat was sold in pieces like beef; when not fat it was used for sausages. When very thin the meat was not offered for sale in any form. The authorities exercised vigilant supervision over the meat as regards quality and wholesomeness.

**THE ARTICHOKE.**—This vegetable is rarely seen on the American table, but is largely consumed in every part of France. It is boiled and eaten by dipping into a sauce each piece as it is consumed. Sometimes the sauce is prepared in the kitchen, but more generally each one makes his own sauce at the table, consisting of olive oil mixed with a trifle of vinegar and salt. Only the whitish part of the artichoke is eaten. It is nutritious, of a delicate flavor, and is more easily preserved from disease than the potato, in consequence of which one of the members of the Central Imperial Society of Paris recommends its substitution for that popular vegetable, at least to a certain extent. The same authority states that it is nourishing as well as economical food for animals.

**HOW TO EXTRACT COFFEE.**—If coffee, after roasting, were made as fine as flour by pounding in a mortar, it could be extracted so much better as to require no more than two-fifths as much as if it were only coarsely ground. An equally strong extract can be made by allowing water to stand on the grounds, as by giving it a boil or by filtering through it. The latter method is the true one for retaining all of the aroma. When coffee beans are roasted, an empyreumatic oil is produced, which being very volatile, is expelled if the coffee extract be boiled. It is better to make the grounds as fine as flour, and to extract by filtration, and never to boil.

**HOW TO MAKE TEA.**—Tea cannot be properly made from water that has been boiling long. Cold water must be put in the kettle, adding the tea at the moment of ebullition, and not a minute after. It might also be pointed out that the practice of measuring tea in spoons is a mistaken one, as the strength of the infusion depends on the weight; and a few larger or smaller leaves make a wonderful difference in the quantity contained in a teaspoon, and consequently in the strength of the infusion.

**TO DRY VENISON.**—There is no greater delicacy than dried venison. Wm. A. Jepson gives the *Ventura Signal* this recipe which he says is quick and effectual: Bone a nice fresh ham; cut through to the upper joint and put in the hole a piece of salt-petre the size of a pea; then immerse the ham in strong, boiling brine two or three minutes and hang up in a cool, dry, shady place, or, if preferred, smoke it.

**TAKE YOUR MEALS AT REGULAR HOURS.** Breakfast should be enjoyed soon after rising, and before any laborious exercise. Eat no late suppers. Severe physical and mental labor during the last hour, either before or after meals, should be avoided when possible.

**TO CLEAN BRASS.**—If stained, rub over with oxalic acid or strong vinegar; polish with rotten-stone pulverized and whieky or sweet oil, or turpentine; then rub with soft leather or buckskin.

### Domestic Receipts.

**TO PICKLE PEACHES.**—Take any quantity of good ripe peaches, wipe them clean, lay them one day in good brine, take them out and pour sufficient cold vinegar over them; let them stand one day and they are fit for use.

**A NICE WAY TO COOK IRISH POTATOES.**—Boil them until done, then remove the skin carefully, and mash and strain them through a sieve. Add some milk, butter, black pepper, and salt to the taste; bake half an hour and serve hot. A nice custard may be made in the same way, by leaving out the pepper and salt, and adding two eggs, sugar and nutmeg to suit the taste; bake half an hour; serve hot, with cream sauce.

**SCOTCH SNUFF** put in holes where crickets come out will destroy them.

**VEAL CROQUETTES.**—Take very fine minced veal, moisten it with cream, and a beaten egg. Season with pepper, salt, sweet-marjoram, and a little pounded mace. Form into small cones, either by hand, or in a wine-glass; crumb the outside, and fry, or else set into the oven and bake, basting frequently.

**TOMATO OMELET.**—Beat up six eggs, mix two tablespoonsful of flour, with a little butter, and add some salt and pepper. Peel four tomatoes, and chop very fine. Stir all together and fry. Oyster omelet is made in the same way, substituting a dozen chopped oysters for the tomatoes.

**HAM OMELET.**—To 3 eggs and 3 tablespoons of milk, take 1 tablespoon of cooked ham chopped or finely cut. Beat the eggs very light, add the milk and ham with a little salt and pepper. Then pour into a well-buttered frying-pan, enough to cover the bottom, and as soon as it cooks a little, begin to roll it up with a knife, till it looks like a lovely gold fish let out of a brooklet, and tastes even better than it looks.

**COCONUT CANDY.**—Use equal quantities of loaf sugar and grated coconut; add enough milk of the coconut to moisten the sugar. Put it to boil, and stir almost constantly. When the candy begins to turn to sugar, stir in the coconut as quickly as possible. Pour it into buttered dishes. Cut while warm with a buttered knife. Parched ground peas (heat) may also be used.

### Mechanical Hints.

**CONSUMPTION OF SILVER IN NEW YORK.** The sales of silver in New York, for consumption by manufacturers of silverware, including bars of refined and Mexican dollars, are said to aggregate \$5,000,000 annually. Including consumption of precious metals by manufacturing jewellers of all sorts, this aggregate is increased several fold, the estimate of New York being alone \$15,000,000—that is to say, \$5,000,000 in silver and \$10,000,000 in gold; and this is exclusive of what is known as "rolled stock" or ribbons. The fact is asserted that there is more silver used for domestic purposes in the United States than any other country in the world.

**COPAL.**—This resin, when in large pieces, commands high prices, even in those parts of Africa where found. The recent and fossil copal may be easily distinguished by the mottled surface, which is always one of its characteristics. Like amber, the fossil gum often incloses flowers and insects in a perfect state of preservation. Captain Grant has explained the cause of its production; the true copal gum-tree is a climber, running to great heights among the forest trees. It sometimes becomes entirely separated from its original root, and the copal exudes from these detached roots.

**CAMPOR A GOOD BAROMETER.**—The camphor bottle makes an excellent barometer. The thin flakes of the gum will arise to the top of the bottle when there is to be a change in the weather, from fair to cloudy and wet. When the flakes settle down to the bottom, it is almost certain to be good weather.

**FURNITURE POLISH.**—One pint of linseed oil, one wineglass of alcohol. Mix well together. Apply to the furniture with a linen rag. Rub dry with a soft cotton cloth, and polish with a silk cloth. Furniture is improved by washing it occasionally with soap-suds. Wipe dry, and rub over with very little linseed oil upon a clean sponge or flannel. Wipe polished furniture with silk. Separate dusting-cloths and brushes should be kept for highly polished furniture. When sweeping carpets and dusting walls always cover the furniture until the particles of dust floating in the air settle; then remove the covers, and wipe with a silk or soft cotton cloth.

## LIFE THOUGHTS.

SUPERABUNDANCE is a trouble; competency brings light.

HARMONY exists in difference no less than in likeness, if only the same key-note govern both parts.

NOTHING is more easy than to do mischief; nothing is more difficult than to suffer without complaining.

DESPISE a man, and you become of the kind you would make him; love him, and you lift him into yours.

LIFE's firmest ground is insecure, its strongest fortress powerless against the touch of the great destroyer.

### How to Get On in Life.

A young man writes to us that he has had "ten years' office experience," we suppose as a clerk or book-keeper, during which time he has saved "the sum total of \$75," which is his all. He wishes to settle in some "growing young town and grow up with it."—He is evidently sincere, and his letter shows that he is not deficient in ability and has some good sense. We therefore say to him, plainly, that success in life does not come in that way. No man finds a fortune by chance, nor can he "grow" into a state of prosperity merely by planting himself in a fresh virgin soil. Everything in life worth having is wrestled for and acquired through severe labor and self denial. It is a great mistake to suppose that the failures of aspirants in this line come from adverse surroundings. Circumstances have much less to do with material prosperity than is generally supposed. Favoring conditions may accelerate the acquisition of an estate, but the same application and self-denial will guarantee the final result under any conditions. There are exceptions, of course; but this is the rule. A man without a family who has been toiling in New York for ten years, and has laid up but \$75 dollars, would not "grow up" into anything better, even amid the stimulus of that wonderful activity which marks the youth of a thriving town. The accretion that comes upon a man who waits to grow up by outward helps, is only the overlaying of rust and canker that gnaw out the vitals. The true growth is that which comes from within, and employs every faculty in the earnest effort. Nearly all of our young men make the same mistake which our correspondent confesses—they spend too large a proportion of their earnings for adornments and unhealthy indulgences of the baser appetites. Fine clothes, jewelry, cigars, liquors, pleasure hunting, and other costly or vicious habits, waste no inconsiderable portion of their annual income. We heard a man spoken of the other day as one who had been remarkably "lucky" in establishing himself in a comfortable home, and that was the only word used to distinguish between him and an associate who had more brilliant talents, but failed of success. There was no luck in the matter, for we knew them both. They were both married, without children, and each entering upon a salary of \$1,000 per annum, went about the same time to look for board in Brooklyn. The "unfortunate" man took board for himself and wife at \$20 per week, which he said was the cheapest at which he could get a comfortable room in a first-class house. The "lucky" man looked for some time until he found clean, healthy quarters in a third story room at \$7 a week for the pair, his wife to do her own sweeping and make her own bed. He lived within his income and laid up money from the start; the other ran in debt and became embarrassed from the same hour. There is no secret in such histories; he who runs may read them. If any one assumes that the nobler part is to "enjoy life" as we go; and that the acquisition of an estate, the foundation of which is laid in early self-denial, and the structure built in patient toil with the same prevalent spirit ever present, is an ignoble ambition, we shall not argue the case. But we do say that those who desire this result can pursue it safely and surely in no other way, and if a man after knowing what it will cost, will not pay the price for it, he should not grumble at the fates, nor murmur against a discriminating Providence.—*N. Y. Journal of Commerce.*

**FOUR GOOD HABITS—punctuality, accuracy, steadiness and dispatch.** Without the first, time is wasted; without the second, mistakes the most hurtful to our own credit and interest, and that of others, may be committed; without the third, nothing can be done; and without the fourth, opportunities for advantage are lost which it is impossible to recall.



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E. J. FRASER, M. D.,

SURGEON,

No. 102 Stockton Street, San Francisco, Cal.

JOHN BOAHO, Optician,

Has removed from 522 Montgomery street to

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East of Montgomery.

Surveying Instruments made, repaired and adjusted

2517-3m

Farmers and Mechanics  
**BANK OF SAVINGS,**  
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.

GEO. M. CONDEE Cashier. 19v16-3m

WM. BARTLING. HENRY KIMBALL.

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**BOOK BINDERS,**  
Paper Rulers and Blank Book Manufacturers.  
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15v12-3m SAN FRANCISCO.**CO-OPERATIVE UNION**  
Grocery and Provision Store  
Removed to 722 Market street, bet. Kearny and Dupont  
SAN FRANCISCO.  
apl-1f**SAN FRANCISCO**  
**CORDAGE COMPANY.**Manilla Rope of all sizes. Also, Ballo Rope and Whale  
Linn constantly on hand. Mining Ropes of any size  
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Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.

  
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**STEEL PENS.**  
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**SEAL ENGRAVER,**  
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Capital, One Million Dollars.

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ducements for Families. The International Coach will be  
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FREE, and to any part of the city at reasonable rates.  
F. E. WEYGANT & H. C. PARTRIDGE,  
Proprietors.  
24v22-3m**OPAL GAS GLOBES.**An Entirely New Article, with  
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of the fluctuations of steam pressure, and are therefore  
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necessary for the safety of the traveling public. The  
pressure is recorded on a movable chart. They are  
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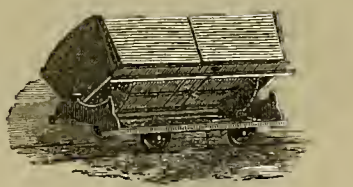
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By this invention, one man, with one horse and five  
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penter, or other workman, can always have in his pocket  
the most valuable of his apparatus used in construction,  
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**KNOWN**Will Not Explode!  
Stands a fire test over 150°Fahrenheit. We take ordi-  
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process, rejecting fully 25(Benzine and Tar), the cause  
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Our "SAFETY" Oil costs 1/2cent per hour, and a lighted  
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## Travelers' Guide.

**CENTRAL PACIFIC RAILROAD.**

Passenger Sunday except d	Express Train Daily	October 2, 1871.	Express Train Daily	Passenger Sundays excepted
4:00 P.M.	8:00 A.M.	San Francisco.....	5:45 P.M.	12:30 P.M.
4:42 P.M.	8:40 A.M.	Oakland.....	5:12 P.M.	11:30 P.M.
5:30 P.M.	7:30 A.M.	San Jose.....	5:30 P.M.	12:15 P.M.
8:28 P.M.	12:25 P.M.	Stockton.....	1:25 P.M.	7:32 P.M.
10:30 P.M.	2:10 P.M.	Sacramento.....	11:45 A.M.	6:00 A.M.
	4:10 P.M.	Marysville.....	5:10 A.M.	
	7:50 P.M.	Sacramento.....	5:40 A.M.	
		Sacramento.....	11:45 A.M.	
		Colfax.....	8:45 A.M.	
		Rebo.....	1:00 A.M.	
		Winnemucca.....	4:05 P.M.	
		Battle Mountain.....	1:25 P.M.	
		Elko.....	8:45 A.M.	
		Ogden.....	5:20 P.M.	

SAN JOSE BRANCH.—Leave SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 3 P. M. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily  
(except Sundays).OAKLAND BRANCH.—Leave SAN FRANCISCO, \*6:50,  
8:10, 9:10, 10:30, 11:10 a. m., 12:00, 1:30, 3:00, 4:00, 5:15, 6:30, 8:30  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).LEAVE BROOKLYN, \*5:15, \*6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:55, 6:10, and 10:10 p. m.LEAVE OAKLAND, \*5:25, \*6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.ALAMEDA BRANCH.—Leave SAN FRANCISCO, 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
9:30 to Fruit Vale only).

LEAVE HEYWARDS, \*4:30, 7:00 and 10:45 a. m., and 3:30 p. m.

LEAVE FRUIT VALE, \*5:25, 7:35, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.

\*Sundays excepted.

**CALIFORNIA PACIFIC RAILROAD.**

4:40 P.M.	8:00 A.M.	San Francisco.....	11:30 A.M.	7:30 P.M.
5:50 P.M.	9:45 A.M.	Vallejo.....	8:45 A.M.	8:45 P.M.
8:00 P.M.	12:45 P.M.	Calistoga.....	1:30 A.M.	2:45 P.M.
9:30 P.M.	2:15 P.M.	Marysville.....	5:30 A.M.	1:00 P.M.
8:15 P.M.	12:15 P.M.	Sacramento.....	7:30 A.M.	3:30 P.M.

Only one train Sunday—leaving SAN FRANCISCO 8:30 A. M.,  
Calistoga 3 P. M., Marysville 10:15 A. M., and Sacramento  
2:45 P. M.**SAN FRANCISCO & N. PACIFIC R. R.**

.....	.....	San Francisco.....	.....	.....
.....	.....	Donahue.....	.....	.....
.....	.....	Fetaluma.....	.....	.....
.....	.....	Santa Rosa.....	.....	.....
.....	.....	Healdsburg.....	.....	.....

\*Sundays excepted.

**CAL. P. R. R. CO.'S STEAMERS.**

5:00 P.M.	4:00 P.M.	San Francisco.....	12:30 A.M.	8:00 P.M.
6:30 P.M.	5:30 P.M.	Benicia.....	10:30 P.M.	6:00 P.M.
.....	2:00 A.M.	Stockton.....	4:30 P.M.	.....
2:00 A.M.	.....	Sacramento.....	12:00 A.M.	.....

\*Sundays excepted.

**T. H. GOODMAN, A. N. TOWNE,**  
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Works, 123 and 125 Beale street, San Francisco.This Preparation is proved by the experience of many  
of our best machinists and engineers to be a perfect cure  
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Muriate of Ammonia.

Sulphate of Ammonia.

Liquor Ammonia, Concentrated.

Aqua Ammonia, F. F. F.

Concentrated Crude Ammonia, for Ice  
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5v23-3m

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ORDERS from the country attended promptly.

8v23-3m

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FOR THE WEEK ENDING OCT. 17.

MINING-SLUDGE AND RIFFLE.—Converse J. Garland, Gwin Mine, Cal.  
SAW.—De Witt Riker, San Francisco, Cal., assignor to himself and Frederick W. Runge.  
SASH-TIGHTENER.—William E. Swett, San Francisco, Cal.  
SAD-IRON HANDLE.—Alexander Tait, Sonora, Cal.  
CONCENTRATING SILVER ORES.—Thomas Wren, Hamilton, Nev.  
HARNES.—George W. Dutton, Tomales, Cal., assignor to himself and John Ashton, same place.  
STEAM-PLow.—Oliver Hyde, Oakland, Cal.

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The Vallejo *Chronicle* makes extended reference to an important industrial enterprise which has just taken shape in Vallejo, as an incorporation, with a capital of \$4,000,000, with an indefinite amount of funds behind that, to be called for when profitable investment for the same can be found. The Trustees are John B. Frisbie, Leland Stanford, M. S. Latham, F. D. Atherton, of California, and A. DeLaski and E. H. Green, of London.

The object of this incorporation is to improve the facilities presented by Vallejo as a railroad terminus and shipping point. Manufactories of various kinds will be established, distilleries, etc., put in operation, and every encouragement will be extended toward the development of the neighboring country. Immigration of skilled mechanics and operatives will also be encouraged, and all reasonable assistance will be extended to such industrial enterprises as can be profitably carried on there. Encouragement will also be given to the extension of railroad lines in various directions from that point.

Active steps will be taken in the spring to carry out the objects of the association. It is the intention, by establishing a free port, and otherwise favoring shipping interests, to make Vallejo the exclusive shipping point for all wheat and other products which can be raised for export along the various railroad and river routes which diverge from that port. It is understood that a connecting link will be built between the Petaluma and Vallejo roads in season for the movement of the next harvest crop. If there is no mistake in the general scope and purposes of this corporation, it will soon become one of the most important industrial enterprises ever set on foot on the Pacific Slope.

FIRES.—We hear of numerous fires all over this and adjoining States and Territories—most of them in the woods and fields, where they have been very destructive, but may in towns and isolated localities, where much damage has been done. On Friday last a destructive fire broke out in the town of Elko, on the C. P. Railroad, which resulted in the destruction of 30 buildings, with some \$60,000 worth of property. It is to be hoped that the rains will soon come, if for no other purpose than to moisten the present dried combustible matter now lying anywhere around, and endangering life and property all over the Pacific slope.

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SUCCESS IN BUSINESS.—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24 Post street, San Francisco. This is the only school on the Pacific Coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which cannot be discussed here. Call at the College and examine its workings. If unable, send for circular, and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address E. P. HEALD, President, Business College, San Francisco, Cal. 10v23bp-3m

Go to the Best.—Young and middle-aged men should remember that the PACIFIC BUSINESS COLLEGE is the oldest and most popular and successful Business Training School on this coast. Upwards of Three Thousand Students have attended during the past six years, many of whom now hold prominent positions in the first banking and mercantile houses of this city. This is the MODEL TRAINING SCHOOL FOR BUSINESS on this coast, having the greatest corps of Professors and Teachers, and the greatest number of students in attendance, of any institution of the kind. Young men flock to this College from all parts of the Pacific States and Territories, British Columbia, Mexico, Sandwich Islands and South America. We shall be pleased to send our College Circular, giving full information to all who send us their address. When you write, mention that you saw this notice in the PACIFIC RURAL PRESS. M. K. LAUDEN, President, San Francisco, Cal.

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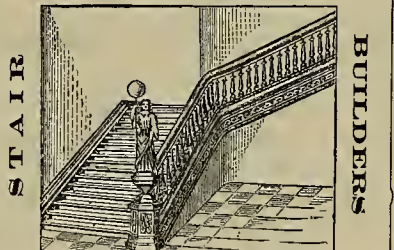
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Has been successful beyond all parallel. Hence the physicians of the tropics give it their emphatic sanction, prescribing it in preference to every other aperient in use. The patients, of course, gladly acquiesce, for this preparation is one of the most delightful, as well as mild and cooling cathartics, chemistry has yet devised, and possesses every medical virtue of the far-famed German Seltzer Spa. It is a powder that only requires the addition of water to produce an instantly delicious effervescent beverage, as well as an invaluable medicine. Ask for and accept none but the genuine.

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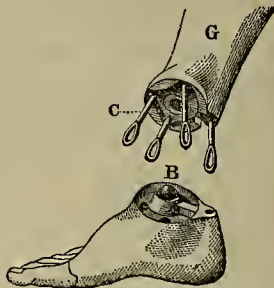
All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasolins and Patent Oils for Stoves and Lamps for sale. County Rights for sale. 10v23-3m

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This device is just what its name indicates. As a KRONEN Tool, it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

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Mining and Other Companies.

On account of the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

**Altona Gravel Mining Company—Location**  
of works, Grass Valley, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of October, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, No. 24 Merchants' Exchange, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 27th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
DAVID WILDER, Secretary.  
Office, No. 24 Merchants' Exchange, California street at San Francisco, Cal. oc24-3w

**Highland Silver Mining Company—Location**  
of works, Railroad District, Elko County, State of Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of October, 1871, an assessment (No. 3) of 100 cents per share was levied upon the capital stock of said company, payable immediately in United States coin, to the Secretary, at No. 24 Merchants' Exchange, San Francisco, California. Any stock upon which said assessment remains unpaid on Monday, the 13th day of November, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made, will be sold on Monday, the 13th day of December, 1871, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.  
DAVID WILDER, Secretary.  
Office, No. 24 Merchants' Exchange, California street, San Francisco, Cal. oc24-3w

**Kearsarge Mining Company—Location**  
of works, Kearsarge District, Inyo County, California.  
Notice is hereby given, that at a meeting of the Trustees of said company, held on the 21st day of October, A. D. 1871, an assessment of five (\$5) dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at No. 24 Merchants' Exchange, San Francisco, California. Any stock upon which said assessment remains unpaid on Monday, the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 20th day of December, A. D. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale.  
JOS. L. KINN, Secretary.  
Office, Room No. 10, Express Building, northeast corner of California and Montgomery streets, San Francisco, California. oc24-3w

**Kincaid Flat Mining Company—Location**  
of works, Tuolumne County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of October, 1871, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Sec'y, at his office, No. 230 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
R. H. CORNELL, Secretary.  
Office, 230 Clay street, San Francisco. oc24-3w

**Nevada Land and Mining Company—Location**  
of works, Spruce Mountain, Antelope and Chilton Districts, Elko County, State of Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of October, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Saturday, the 11th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
W. M. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, California. oc24-3w

**Noonday Silver Mining Company—Location**  
of works, White Pine Mining District, White Pine County, State of Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of October, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary of the company, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 11th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.  
JOS. PH. MAGUIRE, Secretary.  
Office, Room 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. oc24-3w

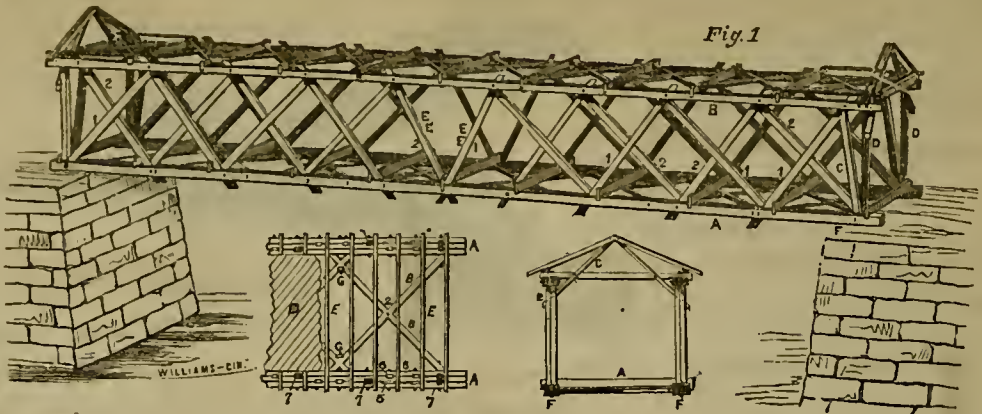
**Piermont Milling and Mining Company—Location**  
of works, Piermont Mining District, White Pine County, Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of September, A. D. 1871, an assessment (No. 1) of one dollar and twenty-five cents per share was levied on the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, 45 California street, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 8th day of October, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 8th day of November, A. D. 1871, will be sold to pay the delinquent assessment, together with the costs of advertising and expenses of sale.  
J. W. CLARK, Secretary.  
oc24-3w

**POSTPONEMENT.**—The day for deeming stock delinquent on the above assessment is hereby postponed until Thursday, the 9th day of November, A. D. 1871, and the sale thereof until Friday, the 8th day of December, A. D. 1871. By order of the Board of Trustees.  
J. W. CLARK, Secretary.  
oc24-3w

**Pocahontas Gold Mining Company—Location**  
of works, Mud Springs, El Dorado county, Cal.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of October, 1871, an assessment of three dollars (\$3) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 124 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 26th day of October, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
D. A. JENNINGS, Secretary.  
Office, Room No. 26, 419 California street, San Francisco, California. oc24-3w

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ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON  
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:  
Being built of wood entirely, they are not affected by change of temperature.  
The timber used is placed so directly in the line of strain, that less material is required to support the same load.  
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That no fact in the history of manufactures is more completely demonstrated, than that the best system of making Watches is the one first established by them at Waltham. That system always had the warrant of reason and common sense, and now the test of time in the trial of the Watches themselves cannot be denied to have been ample and satisfactory. It is admitted on every hand—the evidence of daily observation and common reputation—that the Watches not only keep correct time, but that as machines they ENDURE. It should seem that nothing more is needed, but that their sizes, shapes and appearance should suit the tastes of the people. As to all these conditions the American Watch Co. are now fully prepared to answer the exactions of the market. They confidently assert there is no longer any need for such reasons to import watches of any description whatever. Every size in ordinary demand, every shape and every variety of finish and decoration, may now be had. And as to price, the recent reductions leave no room for doubt that the Waltham system of Watch-making is

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And that the Waltham Watch is the Cheapest as well as the Best.

Many new varieties of movements have been added during the last year, all of which display the Latest Improvements in design and finish, and evince the rapid progress the Company is making toward perfection in the art. Among these the new small size Watch, for Boys and young gentlemen, is to be specially noted. A very low price has been made for this Watch because it is a boy's watch, and with the object of bringing it within the means of boys of all classes. Price being considered.

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To beat or equal for its price. It is made with all the latest improvements in every part—improvements which improve—and which not only make it better for its purposes as a timekeeper, but will make it the great favorite with Watchmakers. This, the highest grade of full plate Watches made in this country, in size and appearance, in finish, and general excellence, is especially intended for and recommended to business men, and in particular to Railway and Expressmen, to constant travelers—in fact, to all live men who must be told by their Watches the correct time of day whenever they want it. All such men should have the

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Counting on such destination for this variety of their manufacture, the company devotes the greatest care to its construction, employ upon it only their best men and best machinery, and issue it with their reputation at stake upon its success.

For sale by all leading jewelers. No Watches retailed by the Company. For all other facts address

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General Agents for American Watch Company, No. 1 Bond street, New York.

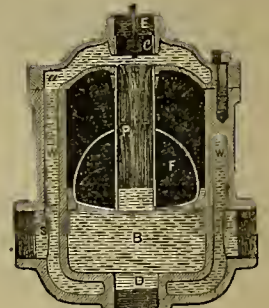
**Silver Sprout Mining Company—Location**  
of works and mines, Kearsarge District, Inyo County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 318 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. B. WINGARD, Secretary.  
Office, No. 318 California street, San Francisco. Room No. 1 and 2, second floor. oc24-3w

**Ophir Copper, Silver and Gold M. Com.**  
pany—Location of Works, Ophir, Placer County, Cal.  
Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 23rd day of October, 1871, an assessment of sixty (60) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, R. G. BRUSH, Office, No. 314 California Street, San Francisco, Cal. Any stock upon which assessment shall remain unpaid on the 25th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 16th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expense of sale. By order of the Board of Trustees.  
R. G. BRUSH, Secretary.  
Office, 314 California Street, San Francisco, Cal. oc24-3w

Wanted.

We desire to make arrangements with a reliable man to act as general agent for Oregon and Washington Territories, to sell a new and saleable article.  
WIESTER & CO., 17 New Montgomery st., S. F.

CRAIG & BREVOORT'S  
Patent Condenser for Steam  
PUMPS, &c.



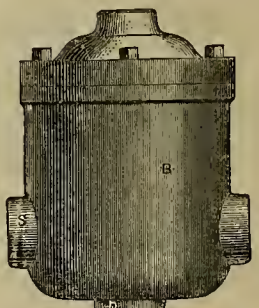
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engine; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

The Valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is especially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address  
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MARINE AND STATIONARY,

**IRON AND BRASS CASTINGS**

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m

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MANUFACTURERS OF

**STEAM ENGINES,**

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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**STEAM ENGINES,**

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AND MACHINERY MADE OF EVERY DESCRIPTION.

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Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

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Embracing ALL SIZES of

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**LIGHT AND HEAVY CASTINGS,**

of every description, manufactured 24v16qr

**Miners' Foundry and Machine Works,**

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

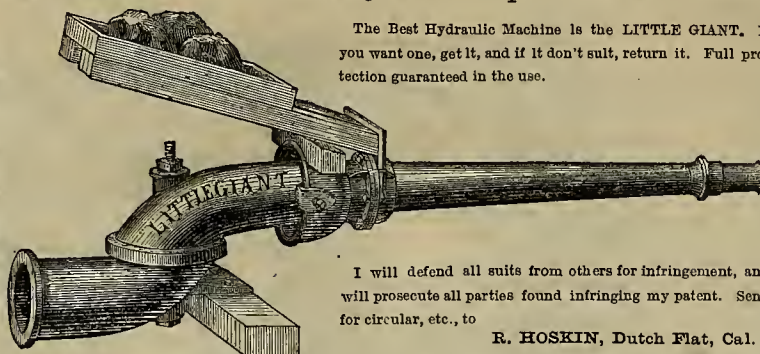
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7v23tf

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PATENTED JULY 19, 1870.



15v23-4m

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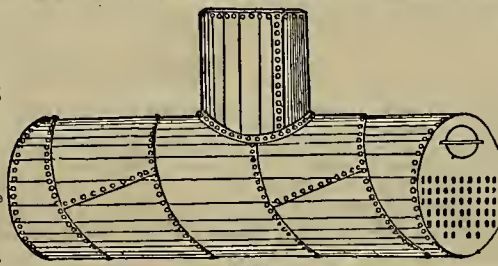
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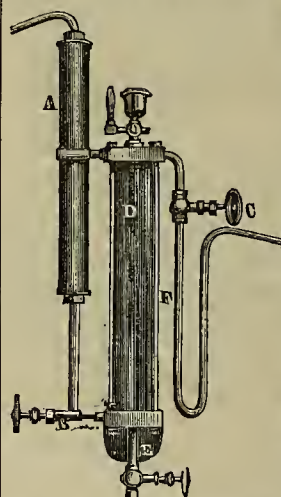
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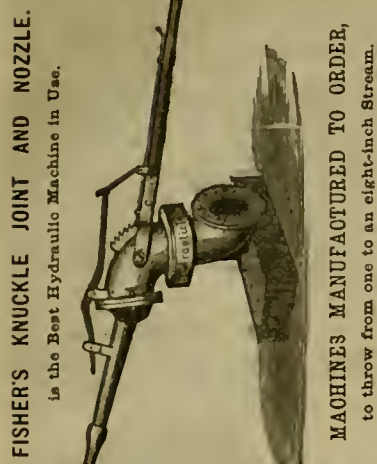
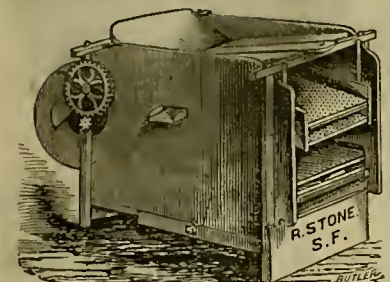
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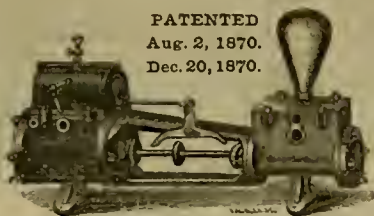
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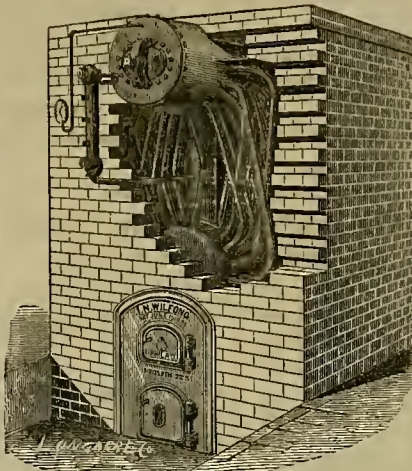
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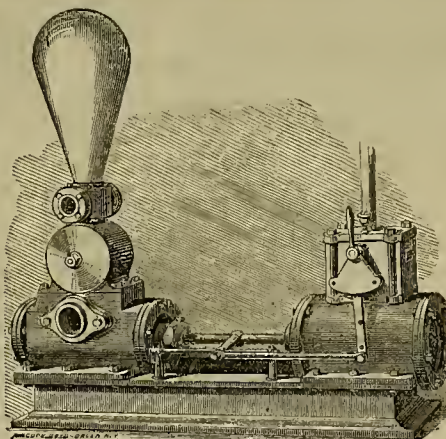
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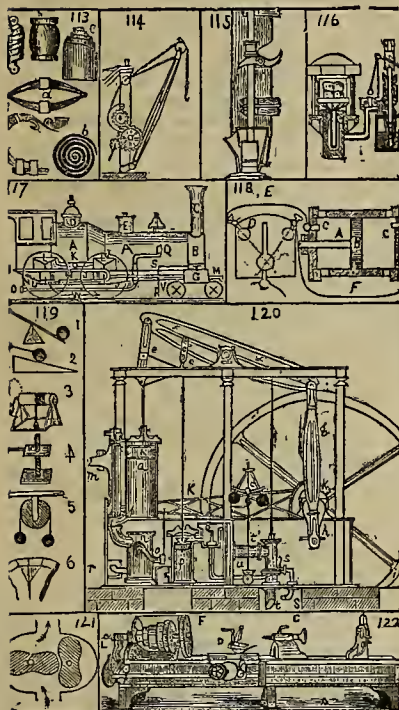


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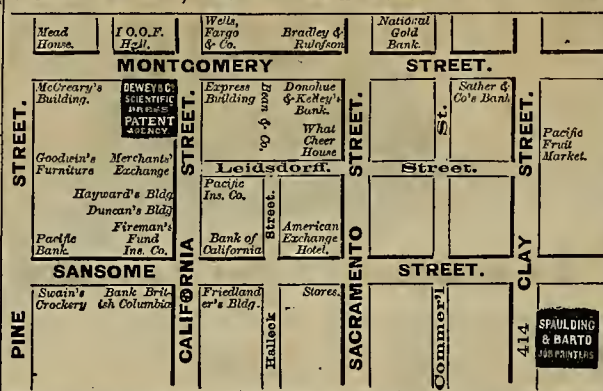
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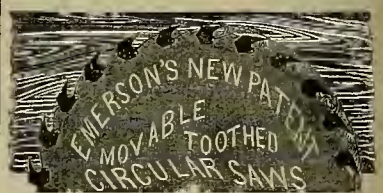
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Blackwood.....		SUPPLIES ALL
Hours at Home.....		Eastern Periodicals,
Good Words.....	3 00	BY THE
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### MINING BUREAU

—OF THE—

### Pacific Coast.

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# SCIENTIFIC PRESS

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SAN FRANCISCO, SATURDAY, NOVEMBER 4, 1871.

VOLUME XXIII.  
Number 18.

## Automatic Steam Vacuum Pump.

Our illustration represents one of the Patent Automatic Steam Vacuum Pumps manufactured by the Aetna Iron works of this city applied to filling the tanks of locomotive tenders. The pump may be placed underground and by attaching a steam pipe to the locomotive and turning on steam it is immediately put in operation. The construction of this pump is simple and the expensive features of the complicated and heavy low-pressure pump-engine are wanting. It consists of a single hollow cylinder containing no piston or other mechanism. Attached to the top of this cylinder is a steam pipe and a small chamber, and to the bottom of said cylinder, valve chambers are affixed, containing plain "flap" valves, opening or closing ports, through which the water is received and discharged in the same manner as in a common pump. These valves by means of light, simple connections, serve to operate all the other moving parts of the apparatus, thus making the pump completely automatic. The receiving, discharging and steam pipes are connected to the cylinder in substantially the same manner as in ordinary pumps.

After setting the pump into position the cylinder is filled with steam and the same instantaneously condensed, thereby forming a vacuum in the cylinder; after this the operation is as follows:—Water is forced by the atmosphere through the lower receiving pipe, filling the cylinder from below, while at the same time a small quantity of air is admitted through a small opening above the water; immediately the vacuum is supplied, steam is admitted in a thin sheet on the top of the air, compressing the same, and forcing the air and water downward, the latter escaping through the discharge pipe.

There is no condensation of steam by this operation, air being one of the best non-conductors of heat known, and, as it is about twice as heavy as steam, the latter lies upon the top of the air, and this stratum of air acts in all respects like a piston to separate the steam from the water, and yet transmits the pressure, and does it, it will be observed, without friction, waste, or condensation.

As soon as the water is forced out of the cylinder, the steam supply is shut off. The steam (remaining in and filling the cylinder) is condensed, a vacuum again created, and the operation repeated; it only requiring a steam pressure of one pound to raise water a distance of thirty feet. The amount of water to be raised in this way depends only upon the size of the apparatus.

The cylinder and valves, and also the slight machinery connected therewith, are of the most durable construction, and the composition of the same is such as to adapt them for all services.

This pump embodies in a simple hollow cylinder, with but few pipes, simple valves and light valve rods, all the important features of the heavy complicated low-pressure engine. Its special merits are economy in fuel; quietness of operation; simplicity of construction, thereby rendering it easy to repair; no packing required, there being no piston; no loss of power in overcoming friction, there being

## Metallurgical Works at Vallejo.

The Vallejo Land and Improvement Co., to which we made a lengthy allusion last week, propose establishing at that point, early next year, extensive metallurgical works, which, according to the *Chronicle*, will exceed in extent any establishment of the kind on the American continent. This location is extremely favorable for receiving ores from the mines of Nevada and Utah by rail, while wood and coal can be obtained in reasonable distances and at minimum prices.

The copper mines of Mariposa and Cop-

## Recent Mining Discoveries.

### California.

A ledge of gold-bearing quartz was brought to light a short time since, on the South Fork side of the divide, between the South and East Fork of the North Yuba river about three miles from Downieville, Sierra Co. Arrangements are being made to work the mine in a systematic manner. It is called the "High Commission."

A new claim, 3,000 feet in length, on French Hill, Calaveras Co., was recorded last week under the name of "Cosmopolitan." The rock prospects well and active work will be commenced in a few days.

A marble quarry has been found about eight miles from Nevada City, near the Yuba river. It is said the ledge is 150 feet in width. The marble is of a dark color and a slab three feet by one foot wide has been sawed out and preserved as a sample of the quality.

A quartz ledge was discovered last week in Grass Valley Township, Nevada Co., on the road between Union Hill and the Idaho mine. It is called the "Jessie" mine.

### Oregon.

A lead of cinnabar ore 12 feet wide, was lately found by Wm. Holmes, on Horn Creek. It has created considerable excitement in the locality among prospectors and others.

### Nevada.

The discovery of a marble mine has been made four miles west of Westgate, Churchill Co., on the old overland stage road. The marble is of good quality and susceptible of a fine polish.

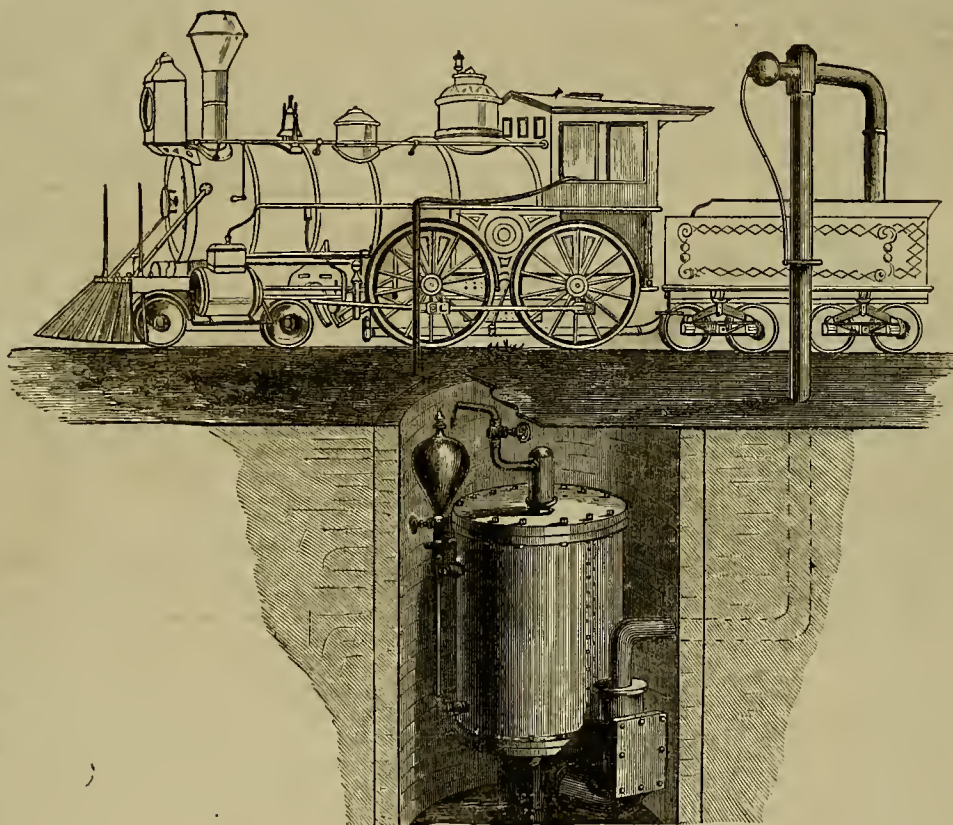
### Utah.

Still another tin discovery is reported near Ogden. The new mine is called the "Gen. Aspinwall." The deposit is said to be large in extent and rich in mineral.

An extensive coal bed has been discovered a few miles from Glenwood, Sevier Co. It is about three miles in length and from two to four feet thick. A company has been organized to develop it.

**AMENDED MAP.**—The amended map of township 12 north, range 8 east of Mt. Diablo meridian, has been filed at the U. S. Land Office, Sacramento and any preemption claim not filed within three months from 28th ult., will be deemed forfeited. This township includes the town of Auburn Placer county.

**THE ARCTIC EXPEDITION** under Capt. Hall, in the "Polaris," arrived at Upernavik on the 30th of August and sailed from there, going north, on the 5th of September. All on board are reported well and confident of success.



STEAM VACUUM PUMP FOR FILLING LOCOMOTIVE TENDERS.

no intermediate machinery between the power and effect; no damaging effect of sand, salt, or sediments.

For further particulars address Jno. O. Hanscom, Aetna Iron Works, San Francisco, Cal.

**COAL OIL IN RUSSIA.**—A coal oil deposit has been discovered at a point about 150 miles southeast of Moscow, Russia, and extensive machinery is being erected to refine the same. The wells do not appear to be flowing, as the oil is "raised."

**PAPER CAR WHEELS** are proving far more durable than those made of iron. A set on a Jersey road has run 160,000 miles, worn out one set of steel tires, and is still in good condition with a new set. The ordinary iron wheels only run about 75,000 miles.

peropolis, it is also reported, are to be opened again, and it is highly probable that the ores can be profitably smelted in California. The managers of this enterprise contemplate putting up crushing mills, roasting, smelting and refining furnaces for gold and silver ores. The very latest and most economical processes will be employed, with all of the most approved devices for separating the metals from their bases and turning them out as a refined article.

The capacity of these works will be greater than the Selby metallurgical works in this city, which cost \$450,000, and where 1,000 men are employed directly and indirectly. Not less than \$500,000 will be expended in getting them into shape, after which they will be extended with the increase of business. The industrial classes, and the money interest generally, will be largely benefitted by the establishment of works of this character, which will be a nucleus around which other manufactories will inevitably spring up, and thereby open up new markets for farm produce.



## MECHANICAL PROGRESS.

## A New Combination Loom.

The New York Times of a recent date contained the following paragraph, relative to a late invention to which we have already made brief reference. If this loom is anything like what is claimed, it can but excite a deep interest among manufacturers everywhere:—"Abel's new combination loom, now on exhibition, is one of the most wonderful and beautiful of recent inventions. It occupies but one-tenth the space of, and accomplishes ten times more work than, any other loom. A boy can furnish enough power for several machines. The old needle is used, but the bobbins are so free from tension that delicate threads can be knit and woven into a fine strong cloth. The entire operation is viewed at a glance. The yarn passes direct from the bobbin. Knots are smoothly sheared and fresh bobbins are supplied without any interruption. There is no dressing, beaming, spooling, or warping; in fact the old method is entirely revolutionized. The machine makes twenty-five yards of cloth per hour. It takes its own warp of filling from the same bobbin as the weft threads. It weaves a cloth that cannot be unravelled, of jute, flax, wool, cotton and silk, and can produce fine blankets, strong carpets, wool-sacks, gunny-cloth, bagging, cotton, linen or silk textures—indeed, anything can be woven or knit. The operation is more noiseless and beautiful than that of the sewing machine. The introduction of this invention into general use has already commenced, and it bids fair to greatly reduce the price of good and durable home-made cloth. Many persons possessing small water and steam powers heretofore unavailable will now be enabled to successfully compete with the larger manufacturers, who by the old process, required much more power and room. No printed description can do full justice to this invention, which must be seen to be appreciated."

## The Screw Rudder.

A new invention has just been patented in Naples by Mr. Salvatore D. Marin. The screw steamers can direct their course with this new invention by the power of the screw alone, and dispense entirely with the rudder, so that instead of losing part of the power on account of the resistance given by the rudder, the screw-rudder increases the power; besides, the rudder can only act when the vessel is in motion, whilst the screw-rudder will make the vessel turn on itself when standing still. The rudder frequently becomes useless against sea and wind, but it appears that the screw-rudder serves and follows the will of the captain, because it gives effective motions, and not motions which are the result of power and resistance. The vessel going backwards obtains by this rudder of the screw advantages entirely new in navigation, and can be directed at will; and when going forward the system presents also some new advantages, besides giving great improvements on the motion obtained by ordinary rudders, being much more powerful; and the turnings much shorter and more rapid. The screw-rudder can easily be applied to every screw steamer, either mixed or armour vessel, very little changes being required; and for men-of-war, the dispensing of the rudder will place the motion of the vessel more under protection from hostile projectiles. It is also a great advantage in case of the vessel being thrown ashore. The Italian Government is about to try the necessary experiments for its application.—*Mechanic's Magazine*.

**COATING COPPER AND BRASS WITH ZINC BY A WET PROCESS.**—Cover, with a concentrated solution of sal-ammoniac, zinc in grains or powder, placed in a non-metallic vessel; warm to ebullition and introduce into the mixture the objects of copper or of brass which it is desired to coat, after having properly cleansed them. After a few minutes, the objects will be covered with a brilliant, firmly adhering, deposit of zinc. The granulated zinc is obtained by pouring the molten metal into a warm mortar and triturating vigorously, with an iron pestle, until it solidifies.—*M. R. Boettger*.

**ALUMINUM BRONZE** has been used, and, it is said, with great success, as an anti-friction alloy for journal bearings. The journals used were of hard steel, and care having been taken to exclude anything like grit, the wear was found to be very slight.

## Engraving by Electricity.

The efforts which have been made from time to time, with but poor encouragement, to engrave on metals by means of electricity, seem at last, says the *Iron Age*, to have resulted in the attainment of practical results. An ingenious French mechanic has produced an invention by which a metal plate, upon which a design is drawn with a chemical ink of some kind is slowly rotated with its face vertical, and several other similar plates, graded in size, are also slowly rotated by appropriate mechanism. The object of the invention is to engrave on the smaller plates the design traced upon the largest, on different scales of magnitude, which is accomplished by applying a cutting point to the face of each plate, and which is pressed against it by means of an electric current whenever a blunt point, applied to the large plate, encounters the ink in which the design is traced—the cutting points being at other times withdrawn. The point presented to the first plate is merely a "feeler," which determines by electrical agency whether the ink is beneath it or not. If it is, the points are pressed into the surface of the other plates; if not, they are withdrawn and prevented from cutting. The feeler and the briars must, of course, all follow a spiral track. This is crude, and can be made applicable to the reproduction of certain kinds of designs only, but it is considered a long step in the direction of practical success.

**A NOVEL RAILROAD.**—A novel tramway or railroad has been lately built in Turkey, by an English engineer, the propelling power of which is not steam, but animal, horses or mules being employed. A single-rail is laid on sleepers, and the carriage has wheels in the center on the same longitudinal line. Through the car runs a balancing pole, the two ends of which, projecting three feet or more, are secured to saddles on the backs of mules. The animals will thus be one at each side of the load instead of in front, as ordinarily. It would be impossible for the car to turn over, because in order to do so, it would have to force one mule to the ground and lift the other in the air; and, moreover, as the floor would only be six inches above the rail, an overturn would be of no account. All the weight of the car, if evenly distributed, would bear upon the rail, and the animals, having no load on their backs, would be able to exert considerable traction power. The inventor suggests its employment not only for military purposes, but also for tramways in large cities; and says that, where space is very valuable, a horse or mule on only one side of the car would be sufficient. In towns, on bridges, and other important places, the rail might, for a short distance, be dispensed with; and the passenger vehicles should be fitted with a small friction wheel on either side, so that if a horse should fall down, the balance of the carriage would remain undisturbed.—*National Car Builder*.

**TRANSMITTING POWER BY LEATHER BELTS.** The experiments made in the United States with a view to discover the best way of transmitting power by means of leather belts, have led to the conclusion, that the most effectual way to prevent the slipping of the belts is to cover the pulleys with leather. From this, it would appear that leather on leather offers a certain steadiness, and with the further advantage that the belt does fly off, and wears out less rapidly than when it runs on iron or wood. It is found in practice in a spinning factory, that a belt running on leather will produce a thread free from knots, and of much greater length, within a given time, than when running (and slipping) on an iron pulley. And we learn that in a steam mill, with five run of millstones, each set ground 27 busbels a day after they were covered with leather, being from three to four busbels more each than before. In paper mills and sugar mills, equally satisfactory results have been obtained; and we may conclude that pulleys covered with leather are best under all circumstances, even where ropes of wire are used.

**STEEL.**—Mr. Parkes, the inventor of the beautiful preparation of solidified oil, known by the name of "parsine," has recently discovered a process of purifying iron for the fabrication of steel. He first removes every particle of sulphur and phosphorus—the two elements that most deteriorate the quality—by ejecting into it fluoride and chlorides, while in a state of fusion. Afterwards he converts it into steel, by melting it in contact with coal, and again treating it with alkaline chlorides.

## SCIENTIFIC PROGRESS.

## Experiments in Chemical Dynamics.

J. H. Gladstone and Alfred Tribe have recently communicated a paper to the British Royal Society, in which it is shown that in various decompositions of metallic solutions the chemical change in a given time is not in proportion to the amount of salt present, but that twice the quantity gives three times the chemical action; and also that while silver is deposited on copper, in the decomposition of nitrate of silver by copper, an actual passage of the nitric element towards the copper plate occurs. In the present paper the authors exhibited the latter phenomenon in a dissected form, with other observations. A copper plate was immersed in nitrate of copper, and a silver plate in silver nitrate, while the two metals were connected by a wire, and the liquids by a porous cell; silver was deposited upon the silver plate and the copper plate was dissolved. The specific gravity of the copper nitrate solution increased from 1.015 to 1.047, and only a trace of this salt passed into the cell, which originally contained silver nitrate. The passage of  $\text{SO}_4\text{H}$  was also found to take place by an analogous experiment. Several experiments were made in which the nitrate of silver was kept constant, but the nitrate of copper was increased in equivalent multiples. It was found that the silver deposited increased with the increase in copper salt, being about double when the copper salt was seven times as strong, and that the effect of successive additions gradually diminished. This is in strict accordance with other experiments, showing that when the copper plate is immersed in a mixture of the nitrate of copper and silver the amount of silver deposited is increased, though in diminishing ratio by successive additions of copper salt. That this acceleration is not produced by copper salt only, was proven by repeating the experiments with various other nitrates. The tabulated results show that the increased effect does not depend simply upon the nitric element, but likewise on the nature of the salt.

**THE NEW EXPLOSIVE—PICRIO POWDER.**—Professor Abel, Chemist of the Department of War, at the Royal Arsenal of Woolwich, has succeeded, after a great many experiments, in perfecting the new explosive agent which he discovered recently and named *picric powder*.

This compound, the action of which is less violent than that of gun cotton, nitro-glycerine, or picrate of potash, is much more explosive than ordinary gunpowder, and possesses several other properties which appear to render it peculiarly adapted to its intended application. It possesses specially the merit of being promptly and easily prepared, of being less dangerous than other similar explosives, and above all, less liable to take fire by percussion. This powder is to be subjected to a thorough test at Woolwich.

**THE MOUNT WASHINGTON OBSERVATORY.** Sergeant Hearn, of the United States Army, is now on Mount Washington, where he will remain the coming winter with a single companion. The experience of last winter has suggested some important improvements in the establishment of the winter quarters there which have been made. The observations made from this hyperborean peak last winter are considered of sufficient importance in the advancement of science to be again repeated, with the hope of additional researches.

**A NEW METHOD OF OBSERVING THE SUN.** P. Secchi recommends the use of a direct vision spectroscope, behind an ordinary spectroscope. In this way, he says, a sharply defined image of the sun is obtained, on which the protuberances may be measured, and observations generally be readily made.

The fading of photographs is attributed by some to the difference of the mounting boards and the adhesive material employed.

**HEAT OF THE MOON.**—Lord Rosse has found that the heat of the moon is transmitted by a plate of glass in the proportion of 12 per cent., while the same plate allowed the passage of 87 per cent. of solar heat, and only 1.6 per cent. of the heat emitted by a body with the temperature of  $180^\circ$ . His observation, on the apparent temperature of the sky gave him values which vary between  $16^\circ$  and  $31^\circ$ . He finds that between narrow limits, the heating power of the lunar rays appeared to diminish with the altitude only one-third as much as the intensity of the solar chemical rays, as determined by Roscoe and Thorpe. The light of the moon was found to diminish with the altitude in the proportion of three to one, and the lunar heat of about five to one. So far as it was possible to judge by these observations the maximum of heat appeared to be given out a little after full moon.

**SUN ENGINE.**—Several inventors in different countries are attempting to utilize the heat of the sun's rays, and to construct a sun-engine. Many people shake their head at this idea and ridicule the very idea of success. But they are certainly unacquainted with the stupendous force at disposal. To convert one pound of water from zero to steam requires 637 centigrade units of heat. The researches of men of science have proved that every square centimeter of the earth's surface receives not less than 221,675 centigrade units of the sun's heat annually. Forty per cent. of this is absorbed by the surrounding atmosphere, and sixty per cent. reaches the earth. This gives seven centigrade units received per second on each centimeter, so that ninety-one square feet of the earth's surface would receive heat enough every second for the vaporization of one pound of water.—*College Courier*.

**CONTROLLING BALLOONS.**—While experimenting with a magnetic needle, and observing the well-known fact that when this needle is thrust through any solid body and delicately poised, the attraction of this needle is strong enough to turn the body toward the north, it occurred to me that this principle of the needle might be applied to aid in guiding balloons.

Aeronauts have vainly sought for some contrivance for guiding, or preventing the rotation of the balloon. Now, suppose we construct a powerful magnetic needle, or bar, long enough to pass through and project from each side of the balloon; as the slightest influence will rotate a balloon or any other body when suspended in still air, or in a steady current of air, the magnetic bar would keep one side of the balloon toward the north, and other appliances could be used to drive it in other directions.—*Scientific American*.

**ON THE BEHAVIOR OF SUPERSATURATED SOLUTIONS WHEN EXPOSED TO THE OPEN AIR.**—C. Tomlinson communicates a paper to the British Royal Society, in which he states that supersaturated solutions of Glauber's salt (and also of Epsom salt, and of alum) may be exposed to the open air for many hours, and even be taken out of the flasks in clean metal spoons, without crystallizing. If crystallization occurs, a nucleus may always be found in the form of an insect, a particle of soot, etc. If, during exposure, a rain comes on, this solution crystallizes in consequence of the nuclei brought down, but if the flask be put out during a heavy rain, after the solid nuclei have been brought down, no crystallization occurs.

**OZONE.**—M. Loew endeavors to prove, by a long series of experiments, that the oxidizing principle of turpentine is not ozone, but a new kind of *atomistic oxygen*, endowed with some physical force, probably caloric, and which is identical with *antiozone*. The author cites a curious result of the formation of drops of water on the sides of a tube, when pure essence of turpentine and dry oxygen were exposed to the sun in a sealed tube, for several weeks.

**ORGANIC MATTER IN QUARTZ CRYSTALS.**—Experiments made by heating smoky quartz crystals in a retort, to which all access of organic matter was most carefully prevented, gave a product containing carbonate of ammonia, which proved the presence of organic matter.

**UTILIZING A WASTE PRODUCT.**—Iron filings which have been used to convert nitro-benzol into aniline, have recently been applied with great success to the purification of illuminating gas.



CORRESPONDENCE.

EUREKA AND ADJACENT DISTRICTS, NEVADA.

EDS. PRESS:—I left White Pine on one of the coaches belonging to Woodruff & Ennor's stage line, so well and favorably known to the traveling community throughout Nevada, and arrived at

Eureka, in time for supper. This thriving district is one of the best base metal districts on the Pacific Coast. It was only "struck" a few years since, and now bids fair to be second to none in Nevada. The well-known "pancake rock" abounding in large deposits near Eureka, is the best possible thing for building furnaces. Some eight or ten furnaces are now running successfully, and a few quartz mills will soon be erected in the vicinity of those mines which yield milling ore. The place is in a prosperous condition, and none are out of employment. The *Eureka Sentinel*, a well edited journal, was a "weekly" when I was here last, but in order to keep pace with the other improvements of the town, and furnish its readers with early news, has since become a daily.

Water Works. The city is about to have a large water pipe laid from the springs up the cañon, which will be of great convenience to families, and a safe-guard in case of fire. Some 4,450 feet of pipe—made by Locke & Montague, of S. F., will be laid two feet underground. Major McCoy, an old resident of Eureka, is superintending the enterprise.

The Consolidated Company have a large force of men employed at the mine and furnaces. The men in the Bon-eye mine, belonging to this company, struck a new ore chamber a short time since, north of the north shaft, which is very rich. It is 8 feet wide, and is already uncovered for a distance of 32 feet. No estimate can be made as yet of its extent. The ore assays \$130 in gold, without the silver or lead. The main shaft is 160 feet deep, running through vein matter the entire distance, and cutting in its progress three distinct strata of rich lead, gold and silver-bearing ore. This Company make about 61 tons of bullion in three days, valued at \$400 per ton. In the

Richmond, located west of the Champion, after going down an incline 40 feet, we descended a shaft 25 feet to an old ore chamber. The ore is chloride, averaging, I am told, \$100 per ton. The chambers already worked show this deposit to be an extensive one. The bullion is very fine. The company own three claims, with a large furnace in the city which is running successfully. The furnace has turned out about 5 tons of bullion per day for the last 65 days. It is a "circular," lined with "pancake rock," the last lining of which lasted 69 days. They have a forty-horse power engine. J. B. McGee is foreman, and has been very successful as a smelter. G. M. Ogden is general superintendent. They use in connection with the furnace, a refining furnace and a large "calciner," weighing 6,600 lbs made by Goddard & Co. of S. F. The bullion is shipped to Myers & Co., and sold mostly to Thos. H. Selby of the San Francisco Lead Works.

The Jackson Mins. has 16 men employed sinking three shafts, respectively 80, 90 and 120 feet deep; chambers have been worked out 35 feet wide, 50 feet long and 25 feet high.

Reslin Smelting Works. This company have been running one furnace successfully that turns out 3½ tons of bullion per day. J. M. Roberts is general superintendent. They own 160 acres of land and a large number of mines near by; the Hamburg, Helena, Elise and Tip Top, are the principal ones.

Diamond District is in the Diamond range of mountains, about 18 miles N. E. of Eureka City. One of the well-known mines that is being worked at present is the

Champion. There are three veins running parallel; the shaft is 100 feet deep, all in a vein from 18 inches to four feet wide. The lode is

three feet wide at the bottom. They have 250 tons of ore on the dump. The owners intend erecting a smelting furnace. The best of pine timber and good water are found in the immediate vicinity. There are numerous other mines worthy of mention in this district, among them Cumberland, Grant, Elsie and Jupiter. It is rumored here that the Metropolitan mill will be brought from Shermantown.

Pinto Silver Mining District. The Maryland mine has been bought by an English company and their superintendent has taken possession. They will proceed at once with the work and erect a mill. The mine is rich and permanent, and the present owners will have no reason to regret their purchase. There are many valuable mines in this district, but want of time and space compels me to defer any report of them.

Mineral Hill District, which is 50 miles from Eureka, is at present a lively one. The mines are turning out well and the place is in a prosperous condition.

Mineral Hill Silver M. Co. This company (limited) is an English corporation, which has invested largely in the mines of this district. Mr. A. J. Hutchinson, of Virginia, Nev., has charge of the business at present. Mr. M. Eissler, of Idaho, is in the laboratory and assaying department, an intelligent gentleman, and one who fully understands his business. The mill has 15 stamps, and an engine of 64-horse power. They have a large Stetefeldt furnace with a capacity of 22 tons in 24 hours. The working results of their process is said to be 92 per cent of the assay value, under the efficient management of Mr. Pringle. The bullion averages 750 fine.

This company are now building a 20-stamp mill near the one that was constructed last year; they will have a Stetefeldt furnace and all the late improvements. The building of the large works is under the direction of the well-known mechanical engineer of San Francisco, H. W. Bordwell. The engine will be 35-horse power—18 inch cylinder. Some 60 men are employed, and it is more than likely, that by the time this reaches you, the mill will be completed. The two mills will then have 35 stamps and 18 pans, and be able to reduce 50 tons per day. A large quantity of high-grade ore is on the dump. They have laid pipe to a spring some two miles distant, and now have an unfailing supply of water for the mills.

The Ores of Mineral Hill. The ore-bearing channels are enclosed in Devonian Limestone. It is impossible to convey a correct idea of the character of the veins; they not forming true fissures, but being only deposits of a very irregular system. It may be well to represent it as an ore-bearing channel of over 300 feet in width, and there are three parallel ore deposits, which are again cross-cut by other veins. The main channel in the Giant, Rim Rock and Live Yankee seems to show a continuous body of ore extending from 22 to 30 feet in width. The ore extracted from these claims averages higher than that of those lower down the hill on the west side. The greatest depth reached in the Giant is over 120 feet.

The ores differ greatly; the silver occurring mostly as chloride. Splendid specimens of horn silver, however, have been extracted and black sulphurets of silver occur in large quantities, antimonial sulphide of lead, copper and silver, and argentiferous galena. Different carbonates of copper azurite and malachite occur intermixed with the vein matter and form one of the principal features of the ore of Mineral Hill.

The very rich ore is of a light yellow color and is a chloride of lead and silver containing considerable antimony, kerargyrite and mendipite. Towards the lower side of the hill (west) are found many claims, only to a small extent explored, containing base ores, some of which will pay to smelt, but owing to the absence of reduction works no encouragement is given for further development.

Principal Mines. The Silver Queen, Vallejo, Champion, Grant, Rim Rock, Live Yankee, Mary Ann, Maggie, Great Republic, Pogonip, Troy, and Star of the West are the most prominent mines of the district. The Big Sandy, located on the west side of the hill, has an incline 40 feet long. The prospects for this little camp are very bright and the people are in good spirits. I left Mineral Hill at 5 A. M., and arrived at

Palisades in time for the westward-bound train. A

recent fire at this place destroyed over \$40,000 worth of property. Sissons, Wallace & Co., the principal merchants, lost heavily. As a forwarding point to the interior, this place is rapidly increasing in importance. Mr. W. E. Griffin, W. F. & Co.'s agent, tells me that during three months of this year the amount of freight shipped from here was as follows: Merchandise, 4,613,072 lbs.; grain, 1,417,653 lbs.; lumber, 503,750 feet; shingles, 494,000; bullion, (crude) 2,756,571 lbs., and fine \$226,866; express freight, 38,283 lbs., and flour 174,700 lbs. It goes principally to Mineral Hill, Eureka, Hamilton, and other mining districts. Under the stimulus of railroad transportation the forwarding business has been greatly increased.

W. H. M.

Rains and Climate of San Joaquin Valley.

EDS. PRESS:—As the rain table for our portion of San Joaquin valley is now completed for the past three years, allow me to send it to you, for insertion in your columns with accompanying remarks. Though the remarks contain some facts familiar to most of your California readers, they are communicated with the hope that they may be of some interest to your more distant readers, who are seeking information about the soil and climate of our State.

Our place of observation is near Turlock post-office, Stanislaus county, which is 13 miles by the San Joaquin Valley Railroad, southeast of Modesto. It is some 45 miles southeast of Stockton, and 80 southeast of Sacramento. Taking the latitude and longitude of Sacramento as a guide, and the elevations shown by the railroad survey, its correct position is about latitude 37° 27', longitude 120° 55'; high above the sea 130 feet.

This point is in the midst of an extensive farming region, adapted (without irrigation,) only to small grains. It has been proved satisfactorily, however, that with irrigation there are but few useful plants which may not be cultivated here successfully. Our locality is on the treeless land plains, nine miles south of the Tuolumne, nine miles north of the Merced, and 10 miles east of the San Joaquin rivers, there being no native growth of trees or shrubs nearer than those streams. It is also about midway between the foothills of the Sierra Nevada and Coast Range mountains. Geologically, our soil is alluvial, bordered by tertiary to the eastward.

Our monthly rains since September, 1868, in inches and hundredths, have been as follows:

MONTH.	1868.	1869.	1870.
September.....	0.60	0.00	0.00
October.....	sprinkled	1.19	0.25
November.....	0.95	0.49	0.32
December.....	2.83	0.89	1.89
Total for each year to Jan. 1st....	3.78	2.67	2.46
	1869.	1870.	1871.
January.....	2.62	0.89	0.29
February.....	3.53	2.79	1.44
March.....	3.54	1.17	0.31
April.....	0.99	1.00	1.65
May.....	0.65	0.00	0.46
June.....	0.00	0.12	0.02
July.....	0.00	0.00	spr'kld
August.....	0.00	0.00	spr'kld
Total for each wet season.....	15.11	8.64	7.21

A steady falling off in the amount of rain will be observed for the past three years. In '70 and '71 there was less rain than in any season since '50 and '51, in California. Still what little rain there has been was so well distributed as to make more grain than in the dry year of '63 and '64.

The mean temperature of our climate is probably not far from 66° Fahrenheit, as that is the temperature of our well water at the depth of 20 feet. The highest temperature observed in the shade at this point during the past three years was 110° in July, 1870; lowest, 16° (above zero) in December, 1868. For 1871, lowest temperature, 23° in January; highest, 107°, in June. If the mean of these four extremes be taken, it is 64°, or nearly the mean indicated by our well water. We may then, perhaps with safety, give our mean annual temperature as 65°.

All measurement of rain and temperature given above were made with standard rain gauge and thermometer, approved by the Smithsonian Institute at Washington City. We rarely have any winds except from the northwest and southeast, those from the northwest prevailing the greater part of the year. Our rains are produced in a

very uniform manner. First come heavy northwest winds, which continue sometimes from two to five days, followed by heavy southeast winds continuing sometimes two or three days. Then comes the rain. In our heaviest rains the clouds move almost invariably from the southwest. At the conclusion of each rain, in the "clearing up showers," the wind shifts first to the southwest and then to the northwest—so long as it continues from the northwest, we need look for no rain. Evidently the rationale of our rains is this. The heavy northwest winds rapidly fill our valley with the warm and humid air from the Pacific. Then our cold southeast winds from the snow-clad Sierras and cold tablelands beyond, condense this moist air below the point of saturation, and the surplus moisture is deposited as rain. But why our winds blow so steadily from the northwest and southeast is not so clear. It is a well understood principle of physical geography that westerly winds predominate on the western coasts of continents, because vast masses of water lie to the westward of them; but why on our Pacific coast, these assume so uniformly a northwest course, is a question well worthy of further inquiry, as is also the question, why does the wind blow so steadily from the southeast, when the reaction takes place.

Can the conformation of our vast valley of the Sacramento and San Joaquin have anything to do with it, enclosed as it is between the two great barriers of the Sierras and coast range? Is it possible that the northwest and southeast direction of our long and lofty mountain ranges can give a corresponding trend to winds which would otherwise be westerly and easterly? Which are most prevalent on the Pacific beyond our coast, west or northwest winds? If northwest, then, our inland wind currents must be a part of a great oceanic system of winds, but, if west, then must the direction of our winds be modified to a great extent by the trend of our mountain-girt coast and valleys.

With regard to our rains, from an agricultural point of view, the attention of agriculturists elsewhere will be arrested by the fact that with so small a rain-fall during the year, we can raise any grain in California.

At Sacramento, as shown by Dr. Logan, and at this point, the amount of rain for the winter of '69 and '70 was less than nine inches; for '70 and '71, less than eight inches.

Dr. Logan proves by a rain table beginning in 1849 at Sacramento, that the greatest rain-falls in our valley any winter during that time, have been from 32 to 36 ins., and that our average yearly rain-fall for 22 years is 19 inches.

As these two points have a like situation with regard to the Sacramento and San Joaquin rivers and their continuous valley 500 miles in length and from 40 to 60 miles wide, their annual amounts of rain may be taken as a type of the relative amounts throughout the State, although the rainfall is invariably greater nearer the coast and along the foot-hills of the Sierras.

Still with less than eight inches of rain in our valley the past winter, California has raised, according to our most reliable authorities, a surplus of 100,000 tons of wheat and barley, so large was the amount of acreage sown. But the same authorities estimate that we might reasonably have expected a surplus of 600,000 tons.

So our present surplus is but one-sixth of what we might have expected an average season, and our harvest for 1871 may be recorded as yielding not more than a fifth of an average crop.

Yet, does it not speak well for the soil and climate of California that they will make grain, when the entire rain-fall for the year in our valley is less than eight inches?

Who can measure the capacities of our soil, when we have a series of wet winters and reliable system of irrigation? J. W. A. WRIGHT.

Turlock, Stanislaus Co., Oct. 10, 1871.

PAY YOUR POSTAGE.—We have had a few complaints from parties that claim to have sent us notices from whom no letters ever arrived. Lately, from one such person, we have received a letter which had been held over a month from the careless omission of a postage stamp. We presume many supposed miscarriages of letters can be thus accounted for.

A THOMPSON ROAD STEAMER is now employed in hauling lumber for Wm. P. Dougherty & Co., from their mills in the Santa Cruz mountains to their lumber yard in San José.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**ALPINE MINER.**—Oct. 21st: The Battery blocks of the monitor & N. W. Mill were in position this week. The 10 stamps now to be put in will do the work of 20 old-fashioned slow droppers.

The frame of the Schenectady Quartz Mill is up and hoarded and the shingling begun this morning—91,000 are to be used in covering it.

Steam hoisting works for the Globe mine, and almost the entire machinery of the Schenectady mill, are supposed to be at Reno, or between there and here, by teams.

**GETTING READY.**—*Alpine Chronicle*, Oct. 21st: The Exchequer folks are getting ready to start their quartz mill. The mine is looking finely, and daily improving.

### AMADOR COUNTY.

**DOWNS MINE.**—*Amador Dispatch*, Oct. 21st: The mill is lying still on account of the scarcity of water—as is the case with a number of others in the county. About 800 tons of good looking rock are piled up near the mill awaiting reduction, and there is plenty more in the mine.

**KENNEDY.**—The mill has been undergoing repairs for several weeks. It will be ready to crush again next week. The rock taken out of the mine looks as rich as ever.

**KENNEDY MILL.**—*Amador Ledger*, Oct. 28th: The mill is once more in operation. During the summer the Co. has been engaged in "sinking" and placing the mine in working order. They are now able to keep the mill supplied with an abundance of rock for a year to come.

### BUTTE COUNTY.

**CLEANED OUT.**—*Butte Record*, Oct. 28th: During the week there have been several Chinamen engaged in cleaning out and deepening the ditch, which extends from the mines near the bluffs, in the southern suburbs of the town to the river. It is thought the mines along the bluff will pay well this winter, if a sufficient supply of water can be obtained.

**STREET MINING.**—For some days past there have been two Chinamen engaged in mining, with the old-time rocker, the ground in front of the U. S. Stable, making about 50 cts. per day each.

### CALAVERAS COUNTY.

**ANGELS.**—*Cor. Calaveras Citizen*, Oct. 28th: A young man (an Italian) was killed at the Angels Quartz Mine on the 19th. He tried to jump across a shaft 200 ft. deep, fell in, and was drowned, as there was 8 ft. of water in the shaft.

New hoisting works will soon be erected at the Sticles Mine. Ten or 15 men are laying the foundation.

**Calaveras Chronicle, Oct. 28th: Hadler & Steger have struck a fair prospect; rock looks well, but they have to contend with water and the probability is that their ground will prove excessively hard.... Carlton's mill has been running but one arastra during the summer; rock paying from \$3 to \$9 per corg.... Reed & Hilary are crushing; their ore will average \$70 per ton.... Four miles below the head of the Butte ditch the water in the North Fork of the Mokelumne fills a flume 4 ft. wide, 5 inches deep—the flume having a fall of 3 inches in 12 ft.—being more than the same stream afforded in the fall of 1860.**

... Harris' mill, at Sandy Gulch, has been running steady nearly all summer.... Pascoe & Temby, have made an arrangement with Ross, Ham & Crosby to work the lead known as the "Daniel and Pap," one of the best mines in the Dist., the rock paying \$86 per ton.

**GWIN MINE.**—The main shaft has reached the depth of 520 ft.—as far as it is intended to sink at present. Preparations are being made for running the 500-ft. level. The ore is richer at the bottom of the shaft than any previously taken from the mine and the vein wider.

### EL DORADO COUNTY.

**MINING NEAR PLACERVILLE.**—*Mountain Democrat*, Oct. 28th: From Coon Hollow to Texas Hill, on the south side of Hangtown Hill, the miners are busy "cleaning bedrock," with good prospects, considering the great scarcity of water. Most of the claims for a distance of 4 or 5 miles are now well developed and opened. Alderson & Co., Webber & Co., Green Mt., Pascal & Co., Prideaux & Bro., Parker, Loomis & Duncan, are all ready to do heavy washing, providing they can get plenty of water. On the north side of the

hill some claims are doing exceedingly well. Dickerhoff & Goin are cleaning up 100 oz. every 2 weeks, and a good prospect for a continuance. McDonald & Chamel's claim is beginning to pay well. The old Lyon claim, is paying first rate. On Spanish Hill there is not much doing for want of water—all are complaining of its scarcity. On the Porphyry lead, Quartz Hill, and Poverty Pt., the miners are making wages. The old Pacific mill will be started up within 2 weeks. The Supt. has gone below to make arrangements for starting it, the intention being to run for and sink on the old lead or in the old works. Shepard & Co. are running for gravel and expect to strike through soon, when they will start their mill.

### INYO COUNTY.

**SILVER SPROUT.**—*Inyo Independent*, Oct. 21st: The Co. design to move the mill to a point further up the cañon, known as Onion Valley, which will place it directly below and distant about three-fourths of a mile from the mine. In the spring a wire suspension tramway will be erected for the transportation of the ore from the mine.

### LOS ANGELES COUNTY.

**SAN FRANCISQUITO CANON MINES.**—*Los Angeles News*, Oct. 21st: These alluvial deposits are worked almost exclusively at present by the "dry" process, no natural streams of water being within reach to wash the dirt. Mining operations are conducted chiefly by native Californians, who are making from \$1 to \$4 per day. A Co. of Irish men have been at work for several years bringing in a ditch to convey water on these placers from the Santa Clara river.

### MARIPOSA COUNTY.

**FELICIANA.**—*Mariposa Gazette*, Oct. 21st: We understand that this mine, recently purchased by San Francisco parties, is to be immediately opened up and put in shape for proper working. A new mill will be erected in place of the ones destroyed by fire this summer.

**CHISPA FOUND.**—J. Madden found a chunk of pure gold in his claim at the head of Sherlocks creek on Tuesday that weighed 20 oz. and is valued at \$360. coin.

### NEVADA COUNTY.

**MINING LOCATION.**—*National Gazette*, Oct. 28th: The Prospect M. Co. have located 2,100 feet on what is known as the Prospect ledge, G. V. township.

**GOING AHEAD.**—Work on the North Bloomfield Co.'s dam and bridge is being prosecuted vigorously. The dam with the large bridge and other property in the vicinity, was destroyed by fire a short time since; 60 Chinamen and 30 white men are employed. The bridge will be completed in a few days, and the entire force will then be at work on the dam.

**PROSPECTING.**—The ridge between Grass Valley and Nevada never was prospected so vigorously as at present. Work is going on above Banner Hill and between the Banner mine and the Pittsburg. The Manhattan and Cunningham mines are being worked and show splendid prospects. The Branch Mint Co. have driven a tunnel 700 feet long, commencing on the south side of the hill and going toward the center. At the end of this tunnel they have struck a fine ledge of quartz. They have now commenced a tunnel from the north side of the ridge intending to strike the same ledge that was found in running the tunnel from the other side of the hill; if they succeed in finding the ledge with this north tunnel they will tap it 300 feet from the surface which will be the deepest tunnel in the county.

**ITEMS.**—The Erie mine in Grass Valley township, promises to be one of the richest mines in the county. From 15 tons of rock recently crushed \$7,419 were realized. The Dartmouth Co., near Grass Valley have completed their new 10-stamp mill. It will be run by water power as soon as the "rainy season" sets in.

**MANHATTAN.**—*Nevada Transcript*, Oct. 27th: As the fire broke, out which destroyed the works, the miners struck some splendid rock which would pay over \$50 per ton.

**MINING ON DEER CREEK.**—The Nevada quartz mine is looking first rate. The incline is down 75 feet and they are working about on a level with the creek. For the last 40 feet the ledge has grown continually better. Its width is from 6 to 7 feet between walls, which are well defined. The rock contains a quantity of sulphurets and a considerable amount of free gold.

**MINING LOCATION.**—Williamson & Co. have located on Sailor Flat Cañon of 500 feet commencing at Williamson & Wagner's south line, and running up the Cañon to the old Union tunnel.

### PLUMAS COUNTY.

**RICH BAR.**—*Plumas National*, Oct. 21st: Mardon & Co. are taking out a moderate quantity of the "necessary article."

F. Miller & Co., on Stony Bar, are working their claim to advantage.

Corkscrew Co., F. Maynard & Co., also on Stony Bar, have struck a "streak," out of which they are making fair wages. It is a strata of dirt deposited on a sand streak, varying from 6 to 10 inches in thickness.

Taylor Hill is being worked with plenty of water for present use, as the Co. are cleaning up.

Bunker Hill is being worked with renewed vigor by Lafoon & Co. The first yield having been rich, it is more than likely they will find a slug occasionally.

**RESUMED WORK.**—The boys on Clermont Hill have again commenced work on their tunnel and are putting things in readiness for a vigorous winter's siege.

**WILL START.**—There is another rumor that the Crescent mine and mills have been sold to an English Co., and that operations are to be resumed this fall.

**PURCHASED.**—The Applegarth Bros. have abandoned their intention of putting up a new mill, this fall on the Indian Valley mine, but have purchased the Whitney mill, formerly located near the mouth of Hough's Cañon, and will move it to their mine. This, with the mill on the mine will give them 44 stamps.

**ARGENTINE.**—Conklin's mill—five stamps and 2 pans—is running steadily, and the rock is paying well. Mr. C. works from 15 to 20 men, and crushes about 15 tons per day. Lowe & Hobart's mill is running regularly, and paying well. J. Malloy has been fitting up some arastras for the purpose of working the sulphurets, which he catches in reservoirs in the ravine below the mills. The sulphurets are supposed to be very rich. Heath & Co. are at work in the gulch below the mills, and are making big wages—\$20 per day to the man. A new Co. are at work at the forks of Greenhorn and Squirrel Creek, and are making wages. Musick, at the mouth of Greenhorn, pays small wages, the year round, but in the long run, is as good as any of them.

**QUARTZ.**—*Butte Record*, Oct. 28th: W. Perkins came down on Thursday, with some gold dust pounded from a small piece of quartz taken from a ledge near the place known as "Palmetto." He claims the ledge as both rich and extensive, and as located the same.

### SIERRA COUNTY.

**GOOD HOPE.**—*Mountain Messenger*, Oct. 28th: Rock from the mine is now being crushed and pays well. A body of rich ore has been struck in the tunnel.

**KEYSTONE.**—The new 20 stamp mill—4 batteries—50 horse-power engine is completed and running on good rock from the lower tunnel; gold being visible in most of the rock. The old mill will be started to crushing rock soon. A contract for 800 cords of wood is just being completed. The Co. intend to work a large force of men this winter.

**A NUOGET.**—G. V. Union, Oct. 28th: A man by the name of Fields, mining on Kanaka creek just below the bridge of the Chips' Flat trail, found a piece of quartz gold, on Sunday that weighed 96 ozs., and was valued at \$1,500. A few days ago he took out 18 ozs.

### SISKIYOU COUNTY.

**YIELDING WELL.**—*Yreka Union*, Oct. 21st: The claim of Larned, Varney & Co., on the Klamath, below the mouth of Scott river, is yielding well. Last week it yielded from 40 to 75 ozs. a day; on Monday last they took out 100 ozs., and on Tuesday 75.

**RICHARDSON'S CLAIM AT HAPPY CAMP.**—This claim is paying from \$1,000 to \$1,200 per week.

**OAK GROVE CLAIM.**—The claim on McAdam's Creek, is paying better now than for years past. A new channel or etreak of pay dirt, has been struck.

### TULARE COUNTY.

**RICH MINE.**—*Visalia Delta*, Oct. 26th: A gentleman has presented us with a piece of rock from the mine of Biggs & Malthy on White River, 50 miles from this place. It fairly glistens with the particles of gold it displays to the naked eye. The shaft in the mine has been sunk about 100 ft., and the vein is very rich at that depth. Arrangements are being made for erecting a mill upon the mine at once. The ore has heretofore been worked by means of arastrae. Rock has been extracted which yielded as high as \$7 per lb in gold.

## Nevada.

### EUREKA DISTRICT.

**MAGNOLIA Co.**—*Eureka Sentinel*, Oct.

24th: G. Bibbins is working 4 men on double shifts, on a fine body of ore, averaging from \$300 to \$500 per ton in silver. It is mostly of milling rock and of a high grade.

**CHATTANOOGA** is the name of a splendid mine near the head of New York Cañon. The owners have a shaft down 75 feet, with a vein from 3 to 5 feet in width, of carbonate ores mixed with galena. They have 40 tons on the dump which will average \$100 to the ton.

**BONDED.**—The Ohio, Michigan, Niagara, Bell, Kitty Price, Mt. Maryland and New Port mines lately bonded are likely to be sold to California capitalists, the bond expiring in 20 days.

**A STRIKE.**—A fine strike was made in the Kitty Pearce mine in Goodwin Cañon a few days ago. The ore was struck at a depth of 20 feet. It is high grade and apparently very abundant.

**PROSPECTING.**—There is more well directed prospecting going on in this dist. now than at any other time during this season.

**FISH CREEK BULLION.**—The first shipment consists of 10 bars weighing 700 lbs. and is valued at \$300 per ton, the product of a few tons of ores melted in McCormick's small prospecting furnace.

**SILVER WEST.**—A shaft is down 14 feet, and within the last few days a fine body of splendid ore has been developed. It has been penetrated 2½ feet and the general appearance indicates that it may continue. All sides of the shaft are in excellent ore, and not a pound of "waste" has been met with in 15 tons placed upon the dump. Average assays show a value of \$189 per ton.

**PROSPECT MT.**—Some very promising mines are situated on this mountain. Among them the Excelsior, X Y Z, and Golden Gate. Recently, a splendid vein of carbonate ore has been developed in the latter. It is at the highest point on the mountain at which carbonate ore has been found. The vein is 14 feet in width, and the ore high grade.

### ELY DISTRICT.

**BULLION SHIPPED.**—*Pioche Record*, Oct. 26th: W. F. & Co. shipped since Oct. 19th, 43 bars, valued at \$86,335.25.

**PIOCHE MINE.**—Shipping the usual amount of ore to the mill, where they have 250 tons, awaiting the completion of the Stetefeldt furnace before it will be worked. The sinking of the shaft is being pushed rapidly and a new station will soon be formed. Work in the lower winzes has been temporarily suspended, owing to the imperfect ventilation at the bottom. The stopes yield a large quantity of good ore.

**WIDE WEST.**—Work was commenced a few days since, and now at a depth of 8 or ten ft. chloride is coming out. The ore is high grade. The vein is of good size, as are all discovered in the immediate vicinity.

**CAROLINE.**—In this mine, several hundred yards to the south of the Lighters shaft, ore \$300 or \$400 per ton has recently been struck at a depth of 40 ft. This vein is of immense proportions. The ledge runs parallel with that of the Panaca, and may be on the same vein—it corresponding in width of vein to that of the Panaca.

**ARRIVED.**—The hoiler for the hoisting engine to be erected at the Pioche mine arrived in town Monday. The capacity of the engine is 26 horse power. The whim will be run as long as possible. The shaft being perpendicular, a cage will be fitted in for hoisting and lowering. The shaft is now down nearly 300 ft. and still sinking; prospecting is being pushed throughout different portions of the mine.

### HUMBOLDT.

**BULLION.**—*Unionville Silver State*, Oct. 28th: Amount shipped from the Arizona mine, since our last issue, was \$7,291.

**ANTIMONY ORE.**—Forty tons of antimony ore has been shipped from Star Dist. to Mill City, during the past 10 days. A considerable quantity yet remains on the dump, which is being got into readiness for shipment to the same point.

**WHEELER SHAFT.**—Work on the shaft, located south of the Arizona mine, has been suspended for the winter. The shaft is down about 115 ft.

### REESE RIVER.

**LANE & FULLER.**—This mine is steadily turning out a considerable amount of high grade ore, and the ledge is looking first rate.

**JANE LEDGE.**—Mr. Author has recently erected a whim on this mine. He is down on the ledge 80 feet, and has commenced getting a medium class of ore in small quantities. The ledge is about 6 inches wide and looks fair.

**VANCOUVER.**—This mine has been leased. They have laid a new track in the incline, erected a good whim and put the mine in splendid trim.



**FLORIDA.**—This mine is being re-opened under favorable auspices.

**WASHOE.**

**BRUNSWICK.**—Gold Hill News, Oct. 23d: The repairs and remodeling of this mill are in advanced stage of completion. The batteries are nearly erected and in line, and will contain 55 stamps in all, capable of crushing 150 tons per day. The pans and machinery are being put in position. The race is a broad, deep, well constructed affair and is nearly finished.

**OVERMAN.**—The hoisting works are completed and the machinery is working perfectly. The shaft is down 155 feet. Since the machinery started up, sinking has progressed at the rate of 5 ft. per day.

**KNICKERBOCKER.**—After 4 years' litigation the owners have secured their claim to the ground by a government patent. The Co. have re-incorporated and have everything in perfect shape to resume work. There is on it near the surface a width of over 200 feet of vein matter, with a pay streak 11 feet wide and assays from \$9 to \$31 per ton. The will begin the work of cleaning out their old shafts and drifts, preparatory to the erection of hoisting works.

**WHITE PINE.**

**WEEKLY SHIPMENT.**—W. P. News, Oct. 21st: W. F. & Co. shipped during the last week bullion valued at \$46,985.31.

**ENRIKHARDT.**—Finding good ore in the open cut. The quality has improved. Will commence shipping to the mill next week.

**WARD BEECHER.**—Hoisting from the Buchanan chamber through the Buchanan drift.

**NORTH AURORA.**—Connection was made with the new Risdale shaft and Risdale chamber, on Wednesday. The Lady's chamber shows about the the same as last report.

**SOUTH AURORA.**—The tunnel is pushed as rapidly as possible. The Mitchell and Trewolla shafts are looking very favorable.

**GENESSEE.**—Work is progressing finely in the drift.

**BEECHER CON.**—Breaking down ore but not hoisting at present. No new developments.

**SILVER WAVE.**—A new contract will be lot for sinking 50 ft. of shaft 5 by 8. No. 4 shaft is looking favorable. The Chenoweth shaft is down 35 ft., and rock working well.

**ASBURY, G. & S. M. Co.**—Pushing the tunnel ahead and running both drifts.

**MILLS.**—International—Running on company rock....Oasis—Running steadily on company rock....Manhattan—Running on Beecher Con. ore....Swansea—Running on South Aurora rock....Big Smoky—Under repairs....Monte Cristo—Repairing break in machinery.

**Arizona.**

**WALLAPAI DIST.**—Prescott Miner, Oct. 14th: The mines are developing finely. The 5-stamp mill is about completed, and hopes of a prosperous mining season are indulged in by all.

**YAVAPAI Co.**—The Vulture 50-stamp mill, Vulture City, is every day producing from \$2,000 to \$5,000 worth of gold.

**Colorado.**

**BOULDER COUNTY.**—Cor. Central Register, Oct. 25th: Heitzer is moving a stamp mill from North Clear Creek, and putting it up to water power at Middle Boulder.

**McKenzie & Morgan** are raising paying ore in large quantities, from number 5 and 6 west on the Boulder County.

**CARIBOU.**—Corning & Co., owners of the Washab lode, Caribou Hill, have made arrangements for sinking the main shaft 200 ft. It is down 30 ft. The crevice is 7 ft. wide, a portion of which is high grade, marketable ore.

The main shaft of the Caribou is now 223 ft. deep; the lode is increasing in richness and width. The reduction works at Middle Boulder are near completion, Prospecting in Grand Island and northward is active. S. Sanders has a new silver vein, one-half mile northwest from the Boulder County, represented as a valuable lode.

The discovery shaft on the Henry Ward Beecher lode is being sunk night and day. A contract has been let that will carry it to a depth of 40 ft. Already mineral prevails so abundantly through the quartz that 16 inches of the vein are being eased.

**NEVADA ITEMS.**—Central Herald, Oct. 18th: W. Nichols, W. Rowe and Fisher & Co., are doing well on their lease of the claim on the Kent county lode. They are raising large quantities of ore which runs high.

The California is still worked successfully in many places. Harper's claim is

looking better than ever. Stalker's claim is working on tribute.

The Kansas continues to furnish the smelting works and stamp mills with its full share of quartz. Lake & Andrews are putting up a frame on their claim and will soon have an engine in operation.

M. Lewis has leased the Whitcomb mill and its 22 stamps; will be running in a few days. Prize hill presents considerable activity. Young, Sayr & Co., are pushing matters on their property on the Sudebury. The Commonwealth Co. on the Prize lode can be relied on for a steady yield of high grade ores. Below the east end of Nevada St. several claims on the Ashtabula lode are yielding rich ore.

**SOUTH PARK.**—Hochstetlin & Manahan, owners of the "War Eagle," have a pile of 60 tons of first class ore on the dump, which runs about \$50 per ton in arastras.

**Idaho.**

**ONEIDA MINES.**—Cor. New North West, Dear Lodge M. T. Oct. 14th: Several Cos. are sluicing and making \$3 to \$5 per day. Two Cos. on Caribou Gulch are making from \$10 to \$25 per day to the man.

A great many are preparing to run drifts into the hills and bars. The gold is worth \$20 to \$21 per oz. Nuggets worth \$13 and \$14 have been found. I prospected Discovery claim in Caribou gulch and got \$1 to \$3 to the pan.

**Montana.**

**THE SMELTING WORKS.**—Helena Gazette, Oct. 16th: Work is being pushed with astonishing rapidity. The frame work is up and the carpenters are busily roofing and closing it in. The building is 110 by 60 ft. and designed for 6 stacks, although it is the intention to erect but 4 this fall.

**UNIONVILLE ITEMS.**—The Hendre mine and mill are not in operation. The National mill is repairing. This Co. is sinking a new incline on No. 4 and 5 west of the Union, known as the Owyhee discovery. The Columbia mill is running steadily. Its 30 stamps are crushing ore from the mine, and also working over along with the ore the old tailings that had accumulated on the dump. In the mine a fine vein of rich ore presents itself. The IXL mine shows a fine body of ore. The mill will start up about the first of next week, its supply of water being temporarily cut off. The Whitlatch mine is not in operation. On the west side of Grizzly Gulch, the Whitlatch mill and the Phila. mill, of 15 stamps each, are crushing rock from Milo Courtwright's mine in the Park, and making profitable returns.

**Utah.**

**EAST TINTIC.**—The smelter at Homansville is running day and night. Pease & Taylor still keep up their work on the Wyoming, with plenty of ore in sight.

Albee & Co. continue to develop the Black Dragon with satisfactory results. S. B. Moore and others continue sinking on the Sunbeam.

The Galena Bed shows 18 inches of galena.

The Shoebridge is second to none in the dist.

The smelter at Diamond has started up.

**EAST CANON.**—The cañon supplies ore for the continual working of one 15-stamp mill, one "Ford's Direct-Acting" steam battery mill and 6 arastras; 3 furnaces have been erected.

Velocipede Co. No. 2 has contracted to furnish 300 tons of ore in S. L. City. The Velocipede is an immense body of "low grade ore." It runs, 40 per cent. lead and from 40 to 50 ozs. of silver. By last report from the Comstock mine, the average of the ore extracted was \$25.67, and the profits \$8 per ton.

**ORPHEUS.**—Owners of furnaces are busily fixing their smelters, so that they will be in working operation all winter. The addition of roasters to the Pioneer and Brevoort mills will soon be finished. New arastras are going up.

For the past few days excitement has existed here on account of the Ida Elmore mine, on the north side of Lion Hill, the owners having struck a big thing. They are 20 ft. in and have already a 15 ft. vein of ore in sight, consisting of chloride and black sulphurets of silver, the average assay being \$411.56, and no base metal. There are 1,200 ft. in the mine. The owners were offered \$25,000, and could have bonded, but refused \$60,000 for ten days.

**DRY CANON.**—North from Dry Cañon are several new mines of note, the Delaware, Nabob, Baltic and Rip Van Winkle, all similar in character of ore, but different as to formation, etc. The Delaware, appears to cut the strata at right angles, a developed vein of at least 6 ft. wide standing almost perpendicular.

# Mining Stock Market.

THURSDAY EVE., Nov. 2d, 1871.

There has been a very moderate business done in Mining Stocks since the last report, and they still continue dull.

The sum of \$55,000, product of six days' run, was sent down last week from the Raymond & Ely mine, making a total for three weeks of \$159,175. Ninety tons of ore were taken from the Chollar Potosi last week, assaying \$40.10 per ton. Five hundred tons of ore were taken from the Savage during same time, averaging \$36.82 per ton. The Natoma Water and Mining Co. have resolved to discontinue their regular monthly dividends for a time, and to devote the earnings of their canals to the further development of their property. They own 12,000 acres of land, between Sacramento and Folsom, and intend to make a vineyard of part of it—the soil being remarkably well adapted for that purpose. On the 31st ult., \$36,694 were shipped from the Chollar Potosi and \$3,878 from the Caledonia mine. Titus F. Cronise has been elected Secretary of the South Eureka Mining Co., in place of J. W. Clark, resigned. The Quail Hill Mining and Water Co. have elected the following Trustees for the ensuing year: G. F. Sharp, (President); T. F. Cronise, (Secretary); and E. F. Dennison.

## Comparative Prices, Extremes, Advance and Decline.

	Oct. 26	Highest.	Lowest.	Nov 2.	Adv.	Dec.
Alpha.....	30	11	9	—		
Amador.....	30	30	30	30	—	
Belcher.....	30	30	30	30	—	
Buckeye.....	30	30	30	30	—	
Chollar-Potosi.....	30	30	30	30	—	
Caledonia.....	30	30	30	30	—	
Cons. Virginia.....	30	30	30	30	—	
Crown Point.....	30	30	30	30	—	
Dancy.....	30	30	30	30	—	
Empire Mill.....	30	30	30	30	—	
Eureka Cons.....	30	30	30	30	—	
Eureka.....	30	30	30	30	—	
Golden Chariot.....	30	30	30	30	—	
Gould & Curry.....	30	30	30	30	—	
Hale & Norcross.....	30	30	30	30	—	
Ida Elmore.....	30	30	30	30	—	
Imperial.....	30	30	30	30	—	
Kentuck.....	30	30	30	30	—	
Mammoth.....	30	30	30	30	—	
Meadow Valley.....	30	30	30	30	—	
Ophir.....	30	30	30	30	—	
Orig. Hid. Treas.....	30	30	30	30	—	
Overman.....	30	30	30	30	—	
Pioche.....	30	30	30	30	—	
Raymond & Ely.....	30	30	30	30	—	
Savage.....	30	30	30	30	—	
Serra Nevada.....	30	30	30	30	—	
Silver Wave.....	30	30	30	30	—	
St. Patrick.....	30	30	30	30	—	
Wash. & Creole.....	30	30	30	30	—	
Yellow Jacket.....	30	30	30	30	—	

## Latest Prices—Bid and Asked.

	BID.	ASKED.	BID.	ASKED.
Alpha Cons.....	29	30	Ida Elmore.....	—
Amador.....	30	30	Imperial.....	127 1/2 130
Belcher.....	30	30	Meadow Valley.....	31 1/2 32
Chollar-Potosi.....	29	30 1/2	Ophir.....	21 22
Caledonia.....	—	—	Orig. Hid. Treas.....	15 16 1/2
Crown Point.....	—	—	Savage.....	41 1/2 42
Dancy.....	23 1/2	24	St. Patrick.....	92 94
Empire Mill.....	23 1/2	24	Sierra Nevada.....	—
Eureka Cons.....	23 1/2	24	Yellow Jacket.....	58 57
Eureka.....	23 1/2	24		
Golden Chariot.....	88	100		
Gould & Curry.....	—	—		
Hale & Norcross.....	—	—		

## Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC AMERICAN and other San Francisco journals.]

ASSESSMENTS		DAY	
NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT		DAY	OF PAYMENT
Altona, G. Valley, Cal., Oct. 31, 25c.....	Dec. 4—Dec. 26—Nov. 11		
Alameda Coal M. Co., Cal., Sept. 7, 50c.....	Oct. 9—Oct. 30		
Bellevue, Placer Co., Cal., Nov. 1, \$1.....	Dec. 6—Dec. 27		
Buckeye, Lyon Co., Nev., Sept. 11, 50c.....	Oct. 16—Nov. 2		
Dancy, G. & S. M. Co., Nev., Sept. 21, \$2.....	Oct. 25—Nov. 18		
Ida Elmore, Lyon Co., Cal., Oct. 31, \$40.....	Jan. 6—Jan. 8		
Imperial, W. P. Co., Cal., Sept. 5, 50c.....	Oct. 10—Nov. 13		
Golden Chariot, Sept. 12, \$5.....	Sept. 23—Nov. 13		
Gould & Curry, Nev., Sept. 28, \$15.....	Nov. 12—Nov. 20		
Highland S. M. Co., Nev., Oct. 9, 10c.....	Nov. 13—Dec. 4		
Ida Elmore, I. T. Co., Oct. 19, \$2.....	Nov. 24—Dec. 14		
Imperial, G. Hill, Sept. 21, \$10.....	Oct. 24—Nov. 18		
Kearsarge, Lyon Co., Cal., Oct. 31, 25c.....	Dec. 11—Jan. 20		
Kinch, Placer Co., Cal., Oct. 11, \$2.50.....	Nov. 13—Dec. 4		
Metropolitan M. Co., Nev., Sept. 11, \$1.50.....	Oct. 16—Nov. 2		
Nevada Land & M. Co., Nev., Oct. 12, 4c.....	Nov. 11—Dec. 4		
Orig. Hid. Treas., W. P., July 6, \$2.....	Oct. 31—Nov. 25		
Overman, Nov., Sept. 22, \$4.....	Oct. 28—Nov. 2		
Phoenix, Lander Co., Nev., Sept. 27, 50c.....	Nov. 1—Nov. 27		
Piermont, W. P. Co., Cal., Sept. 1, \$1.....	Nov. 9—Dec. 8		
Pocahontas G. M. Co., Cal., Sept. 18, \$3.....	Oct. 28—Nov. 1		
San Jose Co., Nev., Oct. 20, \$5.....	Nov. 23—Dec. 1		
Seaton M. Co., Cal., Oct. 27, \$20.....	Dec. 2—Dec. 30		
Silver Wave, White Pine, Sept. 1, \$1.....	Oct. 3—Nov. 3		
South Eureka Co., Nev., Oct. 24, 25c.....	Nov. 30—Dec. 23		
Starlight, G. and S. M. Co., Nov. 1, 25c.....	Dec. 11—Jan. 20		
Union, Sierra Co., Cal., Sept. 23, 50c.....	Oct. 10—Nov. 13		
Union, Sierra Co., Cal., Sept. 22, \$1.....	Oct. 23—Nov. 10		
Washington & Creole, Nev., Sept. 21, 50c.....	Oct. 30—Nov. 25		

## MEETINGS TO BE HELD.

Crown Point South Ex. Co.....	Annual Meeting, Nov. 4
Kearsarge.....	Annual Meeting, Nov. 9
Nevada Borax Co.....	Meeting, Nov. 13
Ophir O. G. and S. M. Co.....	Meeting, Nov. 14

## LATEST DIVIDENDS—(Within Three Months).

Black Diamond Coal M. Co.....	Payable Sept. 15
Chollar Potosi, \$1.....	Payable Sept. 5
Chollar-Potosi, \$1.....	Payable Oct. 1
Eureka Cons., \$1.....	Payable Oct. 20
Eureka Cons., \$1.....	Payable Oct. 20
Keystone M. Co., \$2.....	Payable Sept. 16
Meadow Valley, \$1.....	Payable Sept. 15
Meadow Valley, \$1.50.....	Payable Oct. 13
Natoma, div. 1 per cent.....	Payable Aug. 5
Natoma.....	Payable Sept. 15
Raymond & Ely, \$1.50.....	Payable Sept. 15
Redington, 1 per cent.....	Payable Aug. 5
Succor Mill and M. Co., 50c.....	Payable Sept. 15
Succor Mill and M. Co., 50c.....	Payable Oct. 1
Yule Gravel, 50 cts.....	Payable Aug. 5

Leather Market Report.	
[Corrected weekly by Dolliver & Bro., No. 109 Post st.]	
SAN FRANCISCO, Thursday, November 2d.	
SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.	
City Tanned Leather, # B.....	26 1/2 27
Santa Cruz Leather, # B.....	26 1/2 27
Country Leather, # B.....	25 1/2 26
French calf comes in more freely, and prices are easier in the cheap grades still continue firm.	
California kip and calf skins are still scarce and high.	
Jodot, 8 Kil., per doz.....	85 00 86 00
Jodot, 12 to 15 Kil., per doz.....	70 00 71 00
Jodot, second choice, 11 to 13 Kil., 8 doz.....	61 00 62 00
Lemoine, 16 to 19 Kil., 8 doz.....	55 00 56 00
Levin, 12 and 13 Kil., per doz.....	58 00 59 00
Common French Calf Skins, 8 doz.....	55 00 56 00
Cornellian, 12 to 14 Kil., per doz.....	65 00 66 00
Oregon Calf, 8 doz.....	54 00 55 00
Robert Calf, 7 and 8 Kil.....	35 00 36 00
French Kips, # B.....	1 10 1 11
California Kip, # B.....	65 00 66 00
Eastern Wheel Stuffed Calf, # B.....	1 10 1 11
Eastern Wheel Stuffed Calf, # B.....	1 10 1 11
Eastern Calf for Backs, # B.....	1 10 1 11
Sheep Roams for Topping, all colors, 8 doz.....	5 00 5 10
Sheep Roams for Lining, all colors, 8 doz.....	5 00 5 10
California Russell Sheep Linings.....	5 00 5 10
Best Jodot Calf Boot Legs, 8 pair.....	5 00 5 10
French Calf Boot Legs, 8 pair.....	4 50 4 60
French Calf Boot Legs, 8 pair.....	3 1/2 3 3/4
Harness Leather, # B.....	3 1/2 3 3/4
Fair Bridle Leather, 8 doz.....	48 00 49 00
Skirting Leather, 8 doz.....	30 00 31 00
Welt Leather, 8 doz.....	30 00 31 00
Buff Leather, 8 foot.....	17 00 18 00
Wax Side Leather, 8 foot.....	18 00 19 00

SUCCESS IN BUSINESS.—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men! if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Step up to the head of course, to the University of Business College, located in the new College Building, 24 Post street, San Francisco. This is the only school on the Pacific Coast where young men can depend upon being thoroughly fitted for Bankers, Merchants, Clerks, and Book-keepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which cannot be discussed here. Call at the College and examine its workings. If unable, send for circular, and READ THE COLLEGE JOURNAL, which will be sent free upon application. Address E. F. HEALD, President, Business College, San Francisco, Cal. 10v23up-3m

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to obtain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Dewey & Co. have discovered the secret of the pure cocoa of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other. Steep the market. Entire solidity, a delicate taste, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packages only at all Grocers, of whom also may be had Taylor Brothers, Original Homeopathic Cocoa and Soluble Chocolate. Sole Importers—Brick Lane, London. Export Chicago, Ill. 1625-17

**N. Seibert's Eureka Lubricators** for steam cylinders are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8v23-3m

A COUGH, COLD, OR SORE THROAT, REQUIRES IMMEDIATE ATTENTION, as neglect oftentimes results in some incurable Lung Disease. "Brown's Bronchial Troches" are a simple remedy, and will almost invariably give immediate relief.

Owing to the good reputation and popularity of the Troches, many worthless and cheap imitations are offered, which are good for nothing. Be sure to obtain the true Brown's Bronchial Troches. Sold everywhere.

**UNIVERSITY OF CALIFORNIA.**—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught.

Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TAIT, Oakland, Master Fifth Class. eeb9pft

THE VIZALTA DELTA has been recently enlarged, and is now one of the largest, best printed and most extensively circulated local weeklies in California. A new job press and material have lately been added to the office to meet the wants of a thrifty and growing community in one of the most promising agricultural districts of the State. E. M. Dewey, proprietor.

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation at once at or near home to introduce our new 7 strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Henderson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

**LADIES DESIRING TO PROCURE A FIRST-CLASS Sewing Machine** cannot easily mount any installment may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York. Good work at high prices if desired. 21v1-12mbp

**Opera Glasses, Pebble Spectacles, and Eyeglasses** of great variety, wholesale and retail. MULLEN, Optician, 205 Montgomery street, Russ Block, San Francisco. 7v23-3m

**CONTINENTAL Life Insurance Co.,** 302 Montgomery street, corner of Pine.



## NOTICES OF RECENT PATENTS.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

**FRUIT BOX.**—C. W. Weston, San Francisco, Cal. The object of this invention is to provide a cheap and convenient box or basket for the transportation and sale of small fruits and berries, so that packages of different sizes can be delivered directly to purchasers without handling the berries or fruit and thus injuring them more or less. It consists of two thin veneers crossing each other at right angles and turned up so as to form a box as is now commonly done; but by forming a sort of channel near the top, the ends of the veneers may be turned over a wire which serves to hold them together and may be of any length to suit any size of box instead of being confined as at present to one size, dependent upon the size of the fastening now employed.

**MINING SLUICE AND RIFFLE.**—C. J. Garland, Gwinn Mine, Calaveras County, Cal. The object of this invention is to provide an improved sluice or riffle for the purpose of saving the float gold and amalgam, which is now to a great extent lost from the difficulty experienced in bringing the minute particles into contact sufficiently close to insure amalgamation. This invention accomplishes the desired end by means of plates or semi-obstructions so placed as to cause a breaking up and diverting of the current from one side to another of the sluice.

**IMPROVEMENT IN STEAM PLOWS.**—Oliver Hyde, Oakland, Cal. This is one of the many patents taken out by the above named gentleman, all of which tend to the perfection of a steam traction engine and plow. The present invention relates to a novel construction by which the cutters are so attached to the frame work and driving power of the machine that each cutter shall have an independent movement vertically. This movement is intended to fit the machine for plowing over rough uneven ground, and is effected by means of a transverse sleeve upon the main driving shaft, by which the driving gears are kept in contact while the cutter shaft is allowed a motion about the main shaft as a center. The rear end of the driving shaft passes through a box which is provided with trunnions and moves loosely in a square opening in the frame so that the movement of each of the cutters is free and independent.

## Formation of Gold Nuggets.

Mr. C. Wilkison announced lately to the Royal Society of Victoria that gold, when placed in a solution of its chloride undergoing decomposition by contact with organic matter, determines the deposit of much or all the liberated gold upon itself. This fact, first observed by Mr. Daintree, he assumes as accounting for the formation of nuggets. Mr. C. Wilkison also found that copper, iron, and arsenical pyrites, galena, zinc blende, stibnite, wolfram, and molybdenite, also act as a nuclei for gold thus reduced, but that brown iron ore and quartz do not. These results have been verified by a critical inquiry conducted by Mr. C. Newberry, analyst to the Geological Survey.

Mr. W. Skey, analyst to the Geological Survey of New Zealand, has communicated to the Wellington Philosophical Society a number of experiments on the same subject. He eliminated the cases of wolfram, etc., as being due to the presence of soluble proto-salts of iron, etc., and therefore had only to investigate the metallic sulphides and arsenides. On pursuing the subject, to his surprise he found that cubes of galena were perfectly gilt when placed in solutions of gold, without the intervention of any organic matter whatever. This direct reduction he has also effected by proto and bisulphides of iron, sulphides of copper, the sulphides of zinc, tin, molybdenum, lead, mercury, silver, antimony, bismuth, arsenic, platinum and gold, and among the arsenides, mispickel and arsenide of silver. While allowing therefore that organic matter has had a share in the reduction of gold, he thinks that by far the greater portion of our gold and silver deposits, especially those situated in the deeper seated rocks and ledges removed from carboniferous strata have been wholly due to the deoxidizing effects of pyritous minerals.

## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

(Expressly for the Press.—Continued.)

The best practical assay of gold quartz, sulphurets, tailings, etc., is based upon the common method of pan washing or prospecting.

In addition to the tools and apparatus before described, a set of large decimal weights will be required. A very convenient set can be purchased of Justinian Caire, Washington street, San Francisco. They are the gramme weights in common use in France. They are cheap and always accurate, being adjusted before being sold, by the government officials, according to French law. The set is from one kilogramme (1,000 grammes) down to 1 gramme. The decimals of a gramme can also be purchased at the same place, but they are in a separate box. As this assay is of the utmost practical value to the miner, I shall describe it with the greatest minuteness.

It must be understood that this is only a working test. It does not give all the gold that is in the rock as shown by a careful fire assay; but what is of far more importance to the mine owner, millman, and practical miner, it gives what may reasonably be expected to be saved in a good quartz mill. In fact it is really milling on a small scale. It is generally very correct and reliable if a quantity of ore be sampled. The only operation which requires any skill is the washing, and that is generally well understood by those who are most likely to avail themselves of the instruction.

Take a quantity of the ore—the larger the better—and spill it into pieces of less size than an egg. Spread it out on a good floor and with a shovel, mix it very thoroughly, then commence shoveling it into three piles, placing one shovelful upon each in succession, until it is all disposed of. Two of the piles may then be put into bags and taken away. The remaining pile is then spread out on the floor, mixed as before, and shoveled in the same manner into three piles. This is repeated according to the quantity sampled, until the last pile does not contain more than 30 pounds of ore. What remains is then removed to the iron slab described in a former article, and by the aid of the iron ring and hammer, reduced to the size of peas. The whole 30 pounds is then spread out, and after careful mixing, portions are lifted with a flat knife—taking up the fine dust with the larger fragments—until about five pounds have been gathered. This quantity is then ground down fine with the muller, and passed through a 40-mesh sieve.

If the rock is rich, the last portions will be found to contain some free gold in flattened discs, which will not pass the sieve. These must be placed with the pulverized ore and the whole thoroughly mixed if the quantity is small; but if large, must be treated separately and the amount of gold calculated into the whole five pounds and noted, when the final calculation is made.

From the thoroughly mixed sample, two kilogrammes (2,000 grammes) must be carefully weighed out. This is then placed in a pan—or better in an evaporating dish,—and carefully washed down until the gold begins to appear. Clean water is then made to replace the dirty, and when the pan and the small residue are clean, most of the water is poured off and a globule of pure quicksilver (which must be free from gold) is dropped into the dish, a piece of cyanide of potassium in size equal to a cubic inch, is also placed with it. As the cyanide begins to dissolve, a rotary motion is imparted to the dish—best done by holding the arms stiff and moving the body. As the mercury rolls over and ploughs through the sand, under the influence of the cyanide, it will collect together all the particles of gold. When it is certain that all the gold is collected, the mercury may be carefully transferred to a small porcelain cup or test tube, and hoiled with strong nitric acid, which must be pure, or may be the acid of 30° B. containing some silver, described in the bullion assay of gold. When the mercury is all dissolved out, the acid is poured off, more nitric acid is applied cold, and rejected, and the gold is then washed with distilled water and dried.

The object of washing with acid the second time, is to remove any nitrate of mercury which might remain with the gold and which is immediately precipitated if water is first used.

The resulting gold is not pure, but has the composition of the natural alloy. Before accurate value calculations can be made, it will be necessary to render the gold pure and weigh it carefully. To purify the gold, it must be melted with silver, rolled out or hammered thin, hoiled twice with nitric acid, washed, dried and heated to redness. The manner of doing this has been fully described.

The method of calculating this assay is very simple. It will be observed that 2,000 grammes were weighed out. Let the 2,000 grammes represent a ton of 2,000 pounds, then each gramme will represent a pound avoirdupois or one two-thousandth part of the whole; and the decimal of a gramme, the decimals of a pound. Suppose the ore yielded by the assay just described, fine gold weighing .072 grammes, it must be quite evident that a ton of the ore would yield the same decimal of a pound; now as it has been found that a pound of gold is worth \$301.46, it is only necessary to multiply this value by the weight of gold obtained in grammes and decimals, to find the value of the gold in a ton of the ore.  $301.46 \times .072 = \$21.70$ .

## Ventilation of Mines.

## A Simple and Effective Method.

Professor Henry W. Whitehill, State Mineralogist, during a visit to this city yesterday, informed us of a new mode of ventilating mines which is now to be seen in successful operation at the Wilson mine, Pine Grove. The plan is so effective, and at the same time so simple and cheap, that he thinks it should be generally known, and having seen an article upon the subject in the *Enterprise*, in which it was stated that the blowers at the Yellow Jacket mine, Gold Hill, are run at a daily cost of \$50, he came up from Carson on purpose to examine the means of ventilation in use at the various works, and to make known the plan which has worked so successfully in the instance named above.

The main shaft of the Wilson mine is 175 feet in depth, and from its bottom a drift has been run a distance of 1,000 feet. The air in this tunnel was formerly so foul that it was almost impossible for workmen to breathe it. All manner of plans for its ventilation were tried, but with little success. The last experiment made, though a failure, suggested the one which finally proved a decided success. It was the connecting of the air-tube leading down the shaft and back to the face of the tunnel with the smoke-stack of the hoisting works. This did but little good. The next thought was to insert the end of the escape pipe of the engine into the end of the air-tube, an elbow being formed in the latter and the end of the escape pipe being allowed to extend within two or three feet of the top of that portion of the tubularising perpendicularly above the elbow. This proved a grand success from the start. The foul air was at once driven out of the mine, and from that day to this there has been no trouble about ventilation. Every puff of steam from the escape pipe is answered by a corresponding throch at the end of the air-tube, nearly 1,300 feet away.

When a blast has been fired, the miners can now return to their work as soon as the flying rocks have fallen; whereas, formerly, the powder smoke proved a very great hindrance. The air at the end of the tunnel is now always just as cool as it is upon the surface. The Professor is confident upon trial that this single expedient will be found quite as efficient in our mines on the Comstock as in the Wilson mine at Pine Grove. To try the experiment here will cost a mere trifle. It will only be necessary to add to the air-tubes attached to the present blowers a length sufficient to reach the escape pipe, where the connection is to be made.

The air-tube used at the Wilson mine is six inches in diameter; escape pipe about three. It would perhaps be well to pay some attention to these proportions in trying the experiment here, though we are inclined to think that the end of the air-tube might be made still larger in proportion to the diameter of the escape-pipe. The greater the diameter of the outside pipe (the inside one always remaining the same size), the greater must be its height above the top of the inside one; yet, it can be made too high to act vigorously, owing to the resistance of the column of air above the point where the steam is discharged from the escape pipe. We hope some of our mining companies will try this plan of ventilation. It will cost but little, and in case it is found that this pumping-out plan will not work, it is only necessary to set the blowers running and fall back upon the old way of pumping in.—*Virginia City Enterprise*.

## THE LIBERAL CLUB OF NEW YORK CITY.

By OUR NEW YORK EDITOR.

New York is as prolific of creeds, clubs, religions, and theories as Dame Nature was fabled to be of life, in the olden time. According to the ancients the hot, rich soil in unknown regions beneath a tropical sun, gave birth to all manner of wonderful monsters.

Among the latest products of our mental soil—which to say the least is hot, if not rich—is the "Liberal Club." Perhaps the best idea of what it is, and what its objects are, can be gained from a statement of the elements of which it is composed. Among the members there are scientific men, literary men, believers in the Bible, believers in nothing, doubters, followers of Darwin, men who hold a theory of spontaneous generation plausible, men who think God a sufficient cause for the external world, rare Christians, ripe sinners, scholars, poets, mathematicians, idlers, workers, thinkers who talk, talkers who don't think, and in a word it is a society composed of the best representative men that can be found, or as they think themselves, the cream of New York minds. It must be confessed that when one considers who they are, their opinions seem plausible.

They meet at stated intervals, bringing up subjects for discussion from all departments of human knowledge, and usually managing to provide brain enough to make their meetings valuable, witty, and interesting. Few societies do as much.

Having among its members men of all possible creeds it is generally sure to get views from all possible sides. So it is not uncommon for the theologian to ask questions of the steam engine man; nor does it excite surprise when political economy answers questions propounded by the chemical man. Members, for a wonder, don't seem to confine their interest to their own special hobbies, and if their past nag don't happen to be showing his paces, may even then show some decided interest in the matter going on.

What the club may come to in years to come, we cannot say; but this members look very wise when the future is mentioned and insinuate great things.

The club was two years old on the 14th of September, and of course celebrated its birthday.

Plympton Hall was the scene of the celebration. On the first floor there was an Art collection. Bought, borrowed, and donated art treasures decorated the room and made a pleasant introduction to the programme up stairs. On the second floor was the "Scientific section," and on the third the "Philosophical and Literary section." The exercises in the sections were somewhat varied. In the first they were mostly short papers on scientific subjects. One poor fellow with a wondrous display of self-esteem, read a long dull paper on Hygiene, which interested nobody. All that was in it sounded so fresh from the text book, that one could almost doubt whether it had passed through his brain at all. The other speakers confined themselves to eight minutes each.

In the Philosophical section there were addresses, recitations, music, poems, etc. Everybody attended these exercises, and all the rest who could not get in went down to hear what the philosophers had to say to each other. After they were through on the upper floor the "Scientific" section had matters all their own way, and had a large audience until midnight. Among the curiosities over which the crowd of ladies were mostly exercised were, a bowl of snags made from an old napkin, a bottle of syrup from the same, coffee, (imitated) from the same source and sweetened with the sugar. Then there was the famous resurrection flower, which was the subject of a light minute discourse; but we must not try to make a catalogue of them all.

The ladies beamed on everybody, and the learned doctors were delightful, and everybody went home and wished for a long life to the Liberal Club and—a long sleep next morning.

One of the addresses from the Literary and Philosophical sections, was given in our issue of October 21st.



## USEFUL INFORMATION.

### Composition of Milk—Butter Globules.

Natural milk forms a liquid containing salt, sugar, casein and fatty globules. The three former are in solution, while the latter, from which butter is formed, is held in suspension, and not in solution. These fatty globules would soon enter into and form a part of the solution, were it not for the fact that they are contained in and protected by membranous envelopes. Were it not for this peculiarity of the fatty globules or butter being contained in cells or sacs, a very good article of artificial milk might be made; but as it is we must renounce for the present, and probably forever, all pretensions to the possibility of such an artificial fluid.

The separation of butter from the milk is simply the breaking of these membranes, and the agglutination of the contents of the individual cells into masses. The microscope distinctly separates and reveals the existence of these butter cells. If we examine with the microscope the milk, soon after the process of churning has commenced, we see the globules still retaining their form, dimensions and aspect. If we make our examinations a little later, we behold minute, irregular masses of butter floating in the body of the milk; still later we notice that these minute masses are aggregating and forming larger ones, like a snow ball gradually increasing by being brought in contact with new particles of snow, until at last we have the mass of butter—the object of the operation. The object of the churning is to break the membranes, so that the aggregation may go on.

To the contrary of the above, however, perhaps it should be stated that Dubrunfaut, a French author, denies that the butter in milk is enclosed in a membrane surrounding the globules; since he can produce, by emulsifying a fluid neutral fat in a slightly alkaline fluid like the whey of fresh milk, a liquid closely resembling milk and showing under the microscope, butter globules. He proposes to make an artificial milk by dissolving in half a litre of water, 40 or 50 grms. of saccharine material (milk-sugar, cane-sugar, or glucose), 20 to 30 grms. of dry albumen (prepared from dry white of egg), and 1 to 2 grms. soda crystals; then to emulsify therein 50 to 60 grms. olive oil or other edible fat.

We believe that Mons. Dubrunfaut has never yet accomplished what he "proposes" to do, as above.

**ACIDULATION OF CHICORY WITH PEAT.**—Chicory is being extensively adulterated with peat, in Europe, and the French savans are endeavoring to discover a ready test for such mal-practice. Contrary to the first supposition, this has been found a very difficult work. On boiling peat with chloroform, a yellowish solution is obtained which, on evaporation, leaves a brittle residue, similar in all respects to bitumen. Chicory contains nothing like this. Hence Mr. Swarts reasons that the presence, in chicory, of a bituminous substance, is a certain proof of adulteration either by peat or some analogous substance. As chicory has come to occupy so important a place for domestic use in connection with coffee, it is proposed that a legal penalty shall be enforced upon this imposition.

**SUGAR AND IRON.**—It is well known that it has not hitherto been possible to transport sugar in iron ships; and at a late meeting of the British Royal Society, a discussion took place on this subject which elicited some curious facts with regard to the action of sugar on iron. During the discussion Dr. Calvert stated that he had discovered a very simple method which entirely prevented the action, and he had no doubt that henceforward sugar would be as safely conveyed in iron ships as in wooden bottoms.

**WHAT WOMEN EAT.**—It is a popular belief that women eat nothing. It is of course conceded that they sustain life by the consumption of some article of nourishment; but eating, in the whole acceptance of the word, is supposed to be foreign to female nature. This fallacy is founded and sustained by women themselves, who, during the affected period of their lives, cultivate small appetites as being of semi-angelic construction. When this pernicious nonsense is conscientiously carried out, the results upon the would-be angels are squalor, red noses, certain loss of vigor, general limpiness, and some other unpleasant consequences. But, as a rule, the smallest appetites at the fashionable tables are exhibited by those shrewd girls whose natural and healthy wants have been thoroughly appeased by secret stuffing. Need we refer our readers to the historical poem concerning Violante in the pantry, gnawing of a nutmeg bone, reminding them how she gnawed it, how she clawed it, when she found herself all alone?

All this is a direct decoit, however, practiced upon unsophisticated old bachelors, who, when they have made the dainty creatures theirs, find out by the butcher's hook, an ocular proof, what sturdy trencher-women they have married. Watch a healthy girl at supper, during the intervals of dancing; she consumes by installments four times as much as her partner, and seems, now the worse for it. Our experience tells us that women eat, in proportion to their weight, as much as men, and are no more fairies in this respect than in the matter of weight.—*Appleton's Journal*.

**ABALONE MEAT—A NEW ARTICLE OF FOOD.**—The shipment of abalone meat to this city promises to become a matter of considerable importance. There are engaged at present in the business of taking and drying abalones, on the coast of Lower California, quite a number of Chinamen, who manage to procure about six tons per month. The abalone is found attached to the rocks; and in extreme low tide in greater quantities than at any other time. The fish, covered by the shell, adheres to the rock as tightly as if glued to it, and is cut loose with a sharp instrument carried by the Chinamen. After filling a large bag with the meat, which is removed from the shell, it is carried to the place chosen to dry it, and is there treated in the same manner that a tough beefsteak is in a first-class boarding-house—that is, it receives a good pounding. After this hesting, the meat is thrown into a large kettle and boiled for a short time; then it is spread out to dry in the sun. After a thorough drying, it is nicely packed in strong sacks and shipped to San Diego, to here shipped from there to the Chinese merchants in San Francisco. The meat commands in this city from five to six cents per pound, and is used exclusively by the Chinese. A considerable quantity is shipped to China, where it is regarded as a great luxury, being only used by the better class of people in that country.

**MACHINE-WORK VS. HAND-WORK.**—A paper at a recent meeting of the Institute of Mechanical Engineers, on Self-acting Machinery for knitting bosiers, supplies another to the many striking comparisons that have been made between hand-work and machine-work. A skilled knitter, using the ordinary needles, will knit sixty loops or stitches in a minute; a frame-work knitter, with his hand-frame, knits about 5,400 stitches in a minute; but three of the self-acting machines, described in the paper, which can be attended to by one girl, will knit 40,500 stitches in a minute. After this, we need not wonder that Leicester can weave stockings enough to supply the world.

**IMMENSE QUARTZ CRYSTALS.**—A large number of immense crystals of quartz were found, in 1868, at Canton Uni, [Switz.?] the largest of which weighed 267 pounds; other specimens weighed as follows:—225, 210, 134, 130, 125, besides many smaller ones, but still of mammoth size. Most of these specimens were of what is known as smoky or topaz quartz.

**A HEAVY TAX-PAYER.**—A. T. Stewart, of New York, last year paid an income tax more than either one of twenty-seven States and Territories, and more than Arizona, Colorado, Dakota, Florida, Washington, New Mexico, Utah, Idaho, and Montana combined. Mr. W. B. Astor paid more than the whole State of Vermont.

**TWENTY-FIVE miles an hour** is shown, by signal service observations, to be the average velocity of a storm.

## GOOD HEALTH.

### A Remedy For Cold Feet.

It is always unfortunate for a person to suffer habitually with cold hands and feet. It indicates that the blood is indifferent in quantity or poor in quality, or that too little exercise is taken. There are many means of partially or wholly remedying the evil, which we will give:

1. Go barefoot in hot weather and expose the feet as much as possible to the direct rays of the sun when it is hot. This remedy may not always be agreeable or possible, but where it is, it surpasses most others. Most people have feet so deformed and miserably tender that the thought of touching the feet to the ground is almost terrible, but a little practice will make it pleasant. Children should go barefooted in summer. They will have more perfect and healthy feet if they do.

2. Lying with the face downward, with thin-soled shoes on, let some one pound the feet with a wooden mallet, not larger than an egg. Let the blows be of such force as are not unpleasant to hear.
3. Stamp with the feet on the hard floor when the shoes are on.

4. Dance an hour or more three evenings in each week. By this we do not mean attend fashionable parties, but the home dance, where dissipation and late hours are unknown.

5. Take a great deal of exercise of the lower extremities, such as walking, running, etc.

6. If you have not sufficient strength of your own, have some person, while you are lying on a couch, knead, percuss, stretch, flex, and extend the limbs in such a way as to draw the blood to them.

7. At night soak the feet in hot water for five or ten minutes, and then, after suddenly dipping them in cool water, have them carefully dried with soft towels and rubbed as hard with the bare hand as they will bear.

8. If you are dyspeptic, improve the digestion. A person with sound digestion is very rarely troubled with cold feet.

To the above add loose shoes, clean, dry stockings, and wholesome food.

**COLOR BLINDNESS.**—Mr. Monck, of Trinity College, Dublin, propounds a novel and interesting theory of color-blindness. The ordinary explanation is that the eye is not sensitive to certain colors; to which it is objected that a color-blind person sees the whole spectrum, and were the explanation true there should not be color-blindness to complementary colors—red and green for example. Monck bases his theory on the phenomena of accidental colors. Thus, if the eye be very sensitive to the excitation of the complementary tint, then this latter, appearing with vividness while the eye gazes upon the original color, is so combined with it as to give rise to the grayish tint with which color-blind persons so often confound colors. The brighter the light, the more quickly and vividly would the accidental color be produced. Another argument is, that color-blind persons rarely see accidental colors. According to this theory, then, the color-blind eye is one in which the complementary color is seen very vividly while looking at the primary color.

**POSTURE OF THE HEAD IN SLEEPING.**—It is a question among people who are unacquainted with anatomy and physiology whether lying with the head exalted, or on a level with the body is the more unwholesome. Many, consulting their own ease on this point, argue in favor of that which they prefer. Now although many delight in holstering up their heads at night, and sleep soundly without injury, yet we declare it to be a dangerous habit. The vessels in which the blood passes from the heart to the head are always lessened in their cavities when the head is resting in bed, higher than the body; therefore, in all diseases attended with fever, the head ought to be pretty nearly on a level with the body; and people ought to accustom themselves to sleep thus and avoid danger.

**FOR FEVER AND AGUE.**—A friend assures us that the following receipt is a sure cure for fever and ague: Half a nutmeg, grated; a piece of almond size of nutmeg, and half a pint of vinegar. Simmer until the almond is dissolved and drink when the chill comes on. This seems like a disagreeable dose, but our friend assures us that it is not nearly so unpleasant as the chills with which he was afflicted for several months, and of which he was cured by this prescription.—*Calistoga Tribune*.

## Suffocation by Gas.

It is curious that in spite of the general dissemination of information among the masses at the present day, there should be so many people entirely ignorant of the properties of illuminating gas. Every now and then some country girl goes to town for a holiday, puts up at a hotel, blows out the gas on going to bed, and is suffocated. These accidents have happened in every city of any consequence in the States, and several instances have been recorded by the press of San Francisco. Considering the danger of these mistakes, and the frequency of their occurrence, we think it would be as well for hotel proprietors to establish a rule that the clerk, or whoever showed visitors their rooms, should explain to them the proper method of extinguishing the gas light. The same end might be effected by putting notices on the doors of the bedrooms, insid-, but for the probability that those most likely to blunder might not know how to read. So many lives have been lost in this way, however, that something ought to be done to protect bucolic visitors from asphyxiation. We commend the suggestion to the hotel keepers of our cities generally.

**A MEDICAL PRESCRIPTION FOR THE BREATH.**—"From six to ten drops of the concentrated solution of the chloride of soda in a wine glass of pure spring water, taken immediately after the ablutions of the morning are completed, will sweeten the breath by disinfecting the stomach, which, far from being injured, will be benefited by the medicine. If necessary, this may be repeated in the middle of the day. In some instances the odor arising from carious teeth is combined with that of the stomach. If the mouth is well rinsed with a teaspoonful of the solution of the chloride in a tumbler of water, the bad odor of the teeth will be removed."

**SLEEP—THE AMOUNT WE NEED.**—What is the quantity of sleep which a reasonable man should be contented with? This is a somewhat difficult question. Tall and bulky people require more sleep than short and thin people, men than women; and all animals sleep longer in winter than in summer. Age, constitution, climate, occupation, and a variety of incidental causes, must be taken into consideration. In extreme old age, much sleep is required. Youth and young adults sleep, habitually, very soundly. The faculty of remaining asleep longer than is necessary, cannot be indulged in without impairing the strength both of the body and mind. In a state of health, the amount of sleep required to restore the nervous energy, averages, we conceive, from six to eight hours.

**FOR THE WHOOPING COUGH.**—At a late meeting of the Academy of Science, Professor Coleman narrated the effect that creosylic acid had in arresting and breaking up the whooping cough in his family. He placed the acid in saucers in the rooms. The change for the better was very decided. The creosylic was merely the anodyne form of the carbolic acid, and would have a similar effect.

The fact explains the beneficial effect of inhaling the air of gas factories for this complaint, as the air of such places is always largely charged with this acid in the form of a gas.

**TO PREVENT PITTING FROM SMALL-POX.**—An ointment made of charcoal and lard, applied freely over the face, neck and hands, is said to prevent pitting in small-pox; it should be used immediately upon the commencement of the disease, and continued until the fever has entirely ceased. This application not only allays the itching, but it appears to shorten the duration of the disease, while it leaves the patient entirely free from all blemishes; the charcoal prevents the action of light, and the lard that of air.

**SOMETHING ABOUT HYDROPHOBIA.**—Mr. Youatt, a famous veterinary surgeon, who has been bitten eight or ten times by rabid animals, relates that the crystal of nitrate of silver rubbed into the wound would positively prevent hydrophobia in the bitten. True or not, it is easily tried, and is not dangerous.

**EVIL EFFECT FROM HEAVY EAR-RINGS.**—Many ladies have ruined the shape of their ears by wearing heavy, massive ear-rings which not only spoil the shape of the ear by elongating it, but also produce headache and pain the face.

**QUICK EMETIC.**—A teaspoonful of mustard in a tumblerful of warm water.



# Scientific Press.

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San Francisco:

Saturday Morning, Nov. 4, 1871.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Nov. 1, 1871.—Legal Tenders buying 88½; selling, 89. Gold in New York to-day, 112½.

## Table of Contents.

Automatic Steam Vacuum Pump—III.; Metalurgical Works at Vallejo; New Mining Discoveries.....	273
MECHANICAL PROGRESS.—A new Combination Loom; The Screw Rudder; Engraving by Electricity; SCIENTIFIC PROGRESS.—Experiments in Chemical Dynamics; The New Explosives—Picric Powder; Heat of the Moon; Ozone; Sun Engine.....	274
CORRESPONDENCE.—Eureka and Adjacent Districts, Nev.; Rains and Climate of San Joaquin Valley.....	275
MINING SUMMARY.—Stock Exchanges and Market Report.....	276-77
Notices of Recent Patents; Formation of Gold Nuggets; On this Assay of Gold; Ventilation of Mines; The Liberal Club of New York.....	278
USEFUL INFORMATION.—Composition of Milk—Butter Globules; Acidulation of Chicory with Peat; What Women Eat; Abalone Meat; Good HEALTH.—A Remedy for Cold Feet; Suffocation by Gas; Sleep—The Amount We Need.....	279
The Alleged Wrong among Miners; Chemical Reduction of Ores; The Water Question.....	280
The Water Question—continued; Warner's Grape Picker—III.; Sad-iron Holder—III.; Barlow's Bedstead Fastening—III.; Photographic Views.....	281
DOMESTIC ECONOMY; Domestic Receipts; Mechanical Hints; Life Thoughts.....	282
The Mezquite Bean.....	284

## Mining Accidents.

Jas. Langdon, night foreman at the Belcher mine, Washoe, was badly hurt on the 26th ult., by a large lump of clay which fell from the side of the shaft, a distance of 400 feet, striking him on the shoulder, while he was fixing the bell wire in the shaft at the 800-foot level.

Hugh Jones, a miner, in the Yellow Jacket mine, received severe contusions and bruises about the back part of the head and shoulders, on the 24th ult., from a falling timber in the incline, in which he was at work.

Edward Wright, a miner in the Crown Point, was badly bruised and cut about the face, breast, and arms, last week, from the premature explosion of a defective blast in the 1,100-foot level. His injuries will not be fatal.

Two men by the name of Haskins and Malone were run over by the car, in the Blue Gravel Co.'s claim, Nevada county, Cal., last Tuesday, and were severely but not dangerously hurt.

## "THE ALLEGED WRONG AMONG MINERS."

We have received a note from Mr. H. T. Lamphire, foreman of the Terrible mine, Georgetown, Colorado Territory, in allusion to the article under the above head, which was published in our issue of Oct. 7th. Mr. L., who has had over 40 years' experience as a miner and foreman thinks that no person could be found against whom such charges could be truthfully laid. We trust that our correspondent may be correct in his surmise; but we are assured by the best authority that such "rumors" are current among miners, in certain localities, and it is for the interest of all that attention should be called to the fact, to the end that if any parties are making such improper use of their position, they may be made aware that public attention is called to the fact and sooner or later exposure must come.

## CHEMICAL REDUCTION OF ORES.

The above is the title of the last chapter (now printed) of Mr. J. S. Phillips's work, the Explorers', Miners' and Metallurgists' Companion, to be issued by Dewey & Co. in a fortnight. This chapter is a good illustration of Mr. Phillips's style of writing; he endeavors to bring his subjects within the comprehension of even those not familiar with chemistry, and the book will, from the parts we have seen, he what its title promises. We reproduce the introduction of this chapter which contains a good deal of information in itself:—

"All the metallic mineral compounds can be decomposed, and their metals reduced, by the wonderful powers of some one or other of the appropriate expensive chemicals; but, for beneficial purposes, we only require a knowledge of such as can be obtained at sufficiently low prices to be available for the profitable extraction of metals.

Fire and water are by far the most important; for the former will so change the constitutional form that the latter may dissolve that which would be otherwise insoluble (as when the insoluble sulphides are heated to volatilize the sulphur of the base sulphide metals, or form the non-volatile and soluble sulphate of silver); or when supplied with a suitable re-agent (as salt), give it a more tractable new form (as the soluble and volatile chlorides of base metals, or the non-volatile and insoluble chloride of silver), which can be readily beneficiated by one of the following processes.

The number of such beneficial elements are few, as all of the best (yet discovered) methods require but fire, sulphur, chlorine, oxygen, and sodium (or other alkaline metals or earths).

Thus, the same elements that were principally at work during the first hot natural stage of the formation of the earth itself—as described in Chapters I and II, Section I, of this book—again become equally efficient in art, when the substance is subjected to the more hasty treatment by fire, to produce the similar initial soluble or insoluble forms for final aqueous beneficiation.

In these fire and humid chemical treatments of metals and minerals, the following more salient facts may be advantageously remembered; for, as all the most valuable processes yet applied are founded thereon, your success will be the more easily attained.

1. When the powdered minerals, or the alloy of the sulphides of copper, iron, and silver, are roasted in a reverberatory furnace, under increasing heat, the copper and iron will be first changed to sulphates, and then to insoluble oxides; whilst the silver will not be oxidized, but will be only changed to, and remain in the condition of, a soluble sulphate, until a greater and sufficient heat volatilizes its sulphuric acid, and leaves the silver in metallic form.

2. If the above carefully treated charge be withdrawn just before the silver is thus freed, the sulphate of silver will be soluble in hot water, and can be run off; whilst the oxides of copper and iron, being insoluble, will remain in the solid residue.

3. Metallic copper precipitates silver from its sulphate solution.

A knowledge of the above simple properties enabled Ziervogel to apply the method in a most successful manner for the reduction of the somewhat peculiar matte and ores of the Mansfield Company, to which it is said to be better suited than any other method; but, for this reason, it is probable that it may have been too much extolled for general effectiveness on silver ores.

4. By roasting an ore of silver at sufficient temperature, with a suitable quantity of common salt, all the silver contained in the charge will be chloridized.

5. This chloride of silver is insoluble in water and in all acids, but may be readily dissolved in a hot and strong solution of common salt, (and in other alkaline liquors).

6. Metallic copper will precipitate the silver from this solution.

Augustin's process was founded on the principles exposed under the fourth, fifth, and sixth headings.

7. When the silver of any argentiferous ore has been chloridized, as under the fourth heading, it may be dissolved in a cold solution of hyposulphite of soda.

8. The base metal chlorides are soluble in hot water.

9. The silver can be precipitated from this solution as a sulphide, by adding sufficient polysulphide of sodium.

Von Patera's method is founded on the

principles enumerated under the seventh, eighth, and ninth headings.

The Becchi and Haupt process, as suggested by Dr. Percy, is governed by the solubility of the base metal chlorides in hot water, under the eighth heading."

## THE WATER QUESTION.

By A. B. BOWERS, CIVIL ENGINEER.

### Irrigation, Swamp Land Reclamation, Etc.

The exclusion of water from lands that are flooded; the furnishing of water where the supply is deficient; the interests of internal navigation; and the water supply of towns, are matters of greater moment to the State, prospectively, if not at present, than any other now claiming the attention of this people. They are of almost equal importance, and the interests of neither, should be sacrificed to the others. Private interests may all lie in one direction. Public interests cover the whole ground, and should be better guarded at the next session of the Legislature.

Want of time, and insufficient data, preclude a full discussion of this question, at present, and we shall attempt nothing further now, than a brief and somewhat discursive notice of its more salient points.

### Swamp Land Reclamation.

Those who have discussed the question of California swamp and tide land reclamation, have, heretofore, so far as their writings have fallen under our observation confined themselves almost entirely to the single problem of excluding water. Now, as these lands are, for the most part, even more valueless without water than with its present superabundance, it is obvious that any scheme for their reclamation, which makes no provision for irrigation, must be worse than useless. In their present unreclaimed condition, nearly all these lands are, for a portion of the year, of considerable value, for pasturage; and some portions yield large quantities of inferior hay. Shut off the water, and these lands, in most instances, suffer from drouth very soon after the rains have ceased to fall; and the fine light vegetable mould, of which the soil, in many places, is largely composed, drifts on the wind, like snow. Vegetation dries up, and the parched soil becomes almost, if not entirely useless for the remainder of the dry season, even when the uplands produce an abundant harvest, on account of their superior capacity for the retention of moisture.

In the latter part of June last, we examined with a spade, a piece of unreclaimed tule, over which a steamboat could usually float four months in the year. At the depth of a foot and a half from the surface, it was nearly as dry as powder, while the grass, even then was dry enough to burn. This land would remain valueless, of course, for any purpose whatever, until the subsidence of the coming overflow, next April or May.

### Irrigation.

Provide the proper irrigation for swamp land, or upland, and you change the whole face of nature. The drifting clouds of dust disappear. Crop follows crop in quick succession; three, four, five, sometimes even seven per annum, each more abundant than the solitary one that cannot always be grown without it; while the sun-baked soil, and withered grass of our pastures, give place to moisture and a perpetual green.

In some portions of Italy, where the amount of rain during the growing season, is greater than the total annual rainfall in California, something like four hundred dollars per acre have been expended for irrigation with highly remunerative results; the grass lands being made thereby, to produce from five to seven crops per annum, yielding from twenty to as high as seventy tons of grass per acre, and averaging about twenty-four; while the rental of these lands runs from twenty-five to as high as one hundred and ten dollars per acre per annum; a rental which could

profitably be paid for such crops, even here, as fifty dollars per acre per annum, has already been paid for irrigable land in this State.

When irrigation is considered essential, and where such stupendous results follow its application to well watered lands, of a character well adapted to the retention of moisture, it is difficult to overrate its value, impossible to doubt its necessity on the porous soils of our swamp and overflowed lands, lying as they mostly do, in broad, open plains, unprotected by woodland or mountain, and exposed to the hot winds from the parched uplands, which sweep down like tongues of fire, lapping up every hit of moisture, scorching and blasting every green thing.

### Hydraulic Engineering.

The reclamation of these lands, involves, therefore, the construction of levees, flood-gates, sluice-ways, dams, canals for irrigation, locks, feeders, ditches, flood-gates, etc., all of which, if unskillfully handled, are among the most troublesome questions of hydraulic engineering—the most difficult branch, and, with the possible exception of some rude attempts at architecture, the most ancient, in some of its forms, of all engineering works. With a record running back more than forty centuries, and with traditions coming down from pre-historic times, it has accumulated a vast amount of dear-bought experience, and, in the lapse of ages, has developed a science that now shrinks from few undertakings, however stupendous, for which the necessary funds can be procured to carry them on.

### Hydraulic Engineers.

To the skillful hydraulic engineer, the reclamation of these lands offers no serious problem, save that of expense. Unfortunately hydraulic engineers are scarce. For the last twenty years railroad construction has almost entirely superseded the construction of canals, and only a few of the old first-class hydraulic engineers have been able to find work. These are fast passing away. One or two of the most experienced are now in this State, one of whom, Wm. H. Bryan, has for some years past, made a specialty of irrigation, and doubtless possesses more information on this subject than any one else in the State, while few men anywhere, have had anything like his experience in handling water. Through his writings, mostly anonymous, and the experiments they have called forth in different parts of the State, our people have gradually been educated into an appreciation of its importance, and one after another are taking up schemes, which he has constantly recommended, since first presenting them, several years ago.

### To the Uninitiated,

the building of dams, levees, etc., seems a very simple affair, and, unfamiliar with the numerous expedients, and constant changes of plan, necessitated by continually varying circumstances and conditions, and unwilling to pay for skilled plans or supervision, they everywhere tread over and over again, the same beaten track, never once looking at the record, and therefore ignorant of the lessons to be gathered from the experience of their predecessors, grope their way as best they can, only to continually reduplicate the story of unsuccessful effort and disheartening failure; and this too in utter disregard of the advice of

### Theoretical Men.

as they sneeringly term those who understand the things whereof they, themselves, are ignorant. The work of reclamation is intrusted to incompetent hands, and when the floods come, broken levees, loss of unstable dams, frightful inundation, devastation and death, often repeated, forces them at last into the recognition of their error; and when the engineer is finally put in charge of the work, as in most cases, he must be, at last, it frequently costs thrice as much for repairs, as the whole would have cost, had it been placed in his hands, at first, while the loss from inundation would have reclaimed the land several times over.

### "The Best System

of reclaiming overflowed and tide lands," is that required by the exigencies of each particular case, which varies of course, with varying conditions. The simplest of all is that adapted to the lands near the mouth of the Sacramento and San Joaquin rivers, lying below the level of ordinary high tide; and consists simply of embankments of sufficient height and strength to withstand the highest tides of the wet season, with sufficient flood-gates to drain off the water as the tides go down. In the course of a few months, the land becomes dry enough, and firm enough for cultivation except where it is too low to be drain-



ed by the fall of the tides; in which case, the better way is, to wait for the water to pass off by evaporation. Thenceforth, irrigation will always be necessary except in the wet season, and perhaps at times, even then. This is furnished in abundance by simply opening the flood-gates so as to let in the tide. The salt water being heavier than the fresh, rolls along the bottoms of the channels, and only the river water flows through the flood-gates and over the land.

**Where High Water Barely Covers the Surface,** but little skill may be thought necessary for the construction of levees, sluiceways, flood-gates, or dams, except in very soft ground. This may sometimes be true. Instances frequently occur, however, even under apparently the most favorable circumstances, to test to the utmost, the ability of the engineer. To specify all these, and explain the procedure proper for each particular case, would require a treatise on hydraulic engineering of several hundred pages, while to specify them in part would but set pit-falls for the unwary, by leading them to suppose that no further difficulty lay in the way.

#### Dimensions of Levees, etc.

No constant figures can be given for the dimensions of levees, flood-gates, sluiceways, canals, or dams. They must conform to the requirements of each particular case, no two of which are precisely the same. Those suitable and economical in one instance, might be useless in another less than half a mile away; or, if adequate to the requirements of the case, might cost much more than another plan equally as good. The size of flood-gates depends, of course, upon the amount of water they are required to discharge; their plan, upon the varying conditions under which they are used. The size of levees, and dams, vary with the depth of water, nature of the foundation, and the weight and character of the materials of which they are composed; and again, with the danger of abrasion from exposure to winds, waves, currents, tides, heat, cold, etc. The varying details of their construction under all these circumstances, would fill a large volume. The details of catchment drains, so constructed as to serve for canals of irrigation, with their feeders, sluiceways, culverts, dams, etc., would fill another. The discussion of reservoirs, to which reference will soon be made, and of their locations, foundations, wasteways, gates, and details of construction, suitable and economical, in the great variety of circumstances and conditions under which they will be required, would make another.

#### All these Details

from first to last, are determined by tedious mathematical computations, based upon careful surveys, and the actual conditions of such particular case, and dams, costing more than \$100,000, may be lost, through the improper laying of a single stone. No one who has mastered even the alphabet of hydraulic engineering, would expect to see these matters exhausted in less than half a dozen volumes.

Those who purpose taking charge of this class of works are recommended to several years study of standard works, for *nowhere* has the old adage, "a little learning is a dangerous thing," been more expensively illustrated than in amateur attempts at hydraulic engineering.

#### Tyros Often Settle Without Hesitation,

questions which the experienced engineer decides only after a careful and thorough examination; and by so doing, they bring discredit upon the profession, through failures which should never have occurred; while on the other hand they are often unable to decide at all, in cases that would occasion an experienced engineer scarcely a moment's thought. The enunciation of a few simple axioms, illustrated by diagrams, would put humbug men into the belief that they could economically manage their own engineering, and thus under the guise of friendship deplete their pockets, and lead them astray.

#### One Single Caution,

however, is so easy of application, and of such importance as to justify its insertion, though it has already appeared in the SCIENTIFIC AND RURAL PRESS.

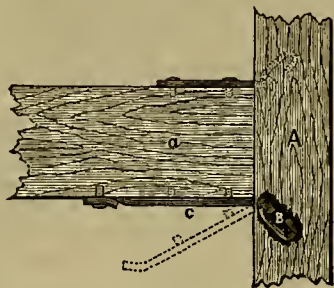
Some, perhaps all of the tide lands lying near the mouth of the Sacramento and San Joaquin rivers, are of a very porous nature, and until consolidated by drainage and settling, may not inaptly be likened to huge pieces of sponge, the edges of which are covered by a coating of clayey sediment, very nearly impervious to water. Upon the upper ends of some of the islands, sediment has accumulated to such an extent as to form quite a firm soil for several rods inland; while upon the lower ends,

it is simply a thin layer extending but a few yards from the shore. Where this sediment is of sufficient depth to reach some feet below the bottom of the ditch or excavation made in constructing the levee, and is of sufficient consistency at this depth, to keep out water, the levee may, if desirable, be located on the inside of the ditch; but, upon the lower ends of these islands, where the coating is only two or three feet in thickness, sometimes not even that, the ditch should be on the inside, otherwise, cutting through this impervious layer, it would admit water to the edges of the sponge, and the land inside would remain so saturated as greatly to impede, if not wholly prevent cultivation, until sediment is deposited in the ditch, in sufficient quantities to stop the water, which in many cases, might not be for years. Contrary to our recommendation, the ditch, in one or two instances, has, under these circumstances, been made on the outside, with results such as we foretold.

[To be continued.]

#### Barlow's Bedstead Fastening.

As often happens with inventions, some little improvement of an existing idea like the one we are about to describe, works a much greater revolution in its special branch than was at first perhaps anticipated. For many years we have been afflicted with inefficient fastenings for bedsteads that are continually getting out of order and breaking down, with the additional disadvantage of being a fastening in a more permanent sense than the inventor intended, for you can never take a bed apart without some trouble—and a hammer. The improve-



ment under consideration evidently does away with the aforesaid objections.

It has two plates, each of which is formed into a hook, the bottom one represented in the accompanying cut as C, and the upper one evident enough without a mark, it being on the opposite side of the rail. The latter is secured upon the upper edge of the rail, A, so that the hooked end shall extend beyond the end of the rail, the hook turning upwards. The upright part, A, to which the rail is to be secured, is provided with a recess so that the upper hook will catch into it. The other hooked plate is then secured in a similar recess which curves downward at the lower corner of the rail, and the plate forced up against the under edge of the rail and there secured, thus bending the rail between two plates. The lower hook is represented in two positions—open by the dotted lines. When closed, the hooked end is caught in the inside pin, B, and the lugs keep it from moving laterally, while a button keeps it from opening, and holds it firmly in position.

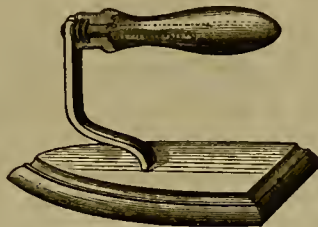
The inventor makes the parts of wrought iron, by machinery, and fits them on any bedstead. This improvement was patented through the SCIENTIFIC PRESS Agency by E. T. Barlow, of this city, and further information concerning it may be had by addressing him.

**THE CARSON ESCAPES.**—Of the 29 prisoners which recently escaped from the Nevada State Prison at Carson 17 have been re-captured, and of the 12 yet at large, one at least is thought to have perished, and the whereabouts of several others is so well known that they can scarcely escape detection. Roberts, one of the captured ones, says it is not much to get out of the prison, but the trouble comes after getting out.

#### Sad-iron Handle.

The cut accompanying this description is a representation of Tait's Sad-iron Handle which consists of a simple and convenient arrangement by which the handle can be removed from the iron when it is being heated, and again be replaced with equal facility when required for use.

It consists of a standard rising from the body of the iron and bent at right angles so as to extend backwards. A shoulder is formed on this horizontal part, having a screw. It would appear as if the single standard would not be firm, as if two were used; but such is not the case, for the single one is as solid as need be and answers all requirements. The handle is of wood

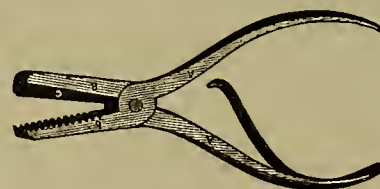


or other non-conducting material and is hollow. A nut or socket is fitted in its outer end, and with a few turns screws on to the part before described when it is necessary to use the iron.

The whole is a convenient iron handle, which can be readily removed and replaced without trouble. The invention was patented through the SCIENTIFIC PRESS Agency, by Alexander Tait of Sonoma, Tnolumne county, Cal., and further information may be gained by addressing him at that place.

#### Warner's Grape Picker.

This useful implement is intended to facilitate the tedious operation of picking grapes. It is made of iron and steel, and is very neat in appearance, combining in one instrument a cutting device and holding jaws for seizing the severed twig or stem.



It consists in the employment, in combination with the knife, of two pinching jaws, one of which is grooved longitudinally through its central line, while the projecting sides are formed into teeth for the purpose of not only giving greater holding capacity, but also of providing space for the stem or twig to occupy without entirely flattening it when the jaws are closed. These teeth also serve to hold the stem in front of the cutting-blade while it is being cut.

A, A, represent the handles, and B, b, the two jaws of a tool similar to an ordinary hand-punch. Secured by means of screws, to one side of the jaw, B, is a knife or blade, c, which in connection with the edge of the opposite jaw, b, will serve as a pair of shears. In severing the stem, it will be caught by the teeth and prevented from slipping from the lower jaw while it is being cut; and as the jaws close together it fills the hollow of the teeth, and is pressed into the longitudinal channel, thus giving a firm hold without completely flattening it, as is the case with plain jaws.

This implement is of especial advantage for picking grapes and other heavy bunches of fruit, too large to be held by the tension of a spring. To parties having large vineyards where grapes are used for manufacturing purposes, or for market, this tool is especially useful. It was patented by G. A. Warner, of this city, through the SCIENTIFIC PRESS Agency.

Parties desiring further information concerning this implement, may procure the same from inventor or C. W. Butler, at No. 537 Sacramento street, or of Wiester & Co., No. 17 New Montgomery street.

#### Wanted—A Geological or Mining Museum.

In a community where so much interest is taken in mining, it seems strange that no public institution or set of men have started anything in the shape of a Geological Museum. The community, it may be said, had its very foundations laid in practical geology; and millions of capital are now invested in mines, the character of which would be better understood by their owners if they were in a position to make comparisons so as to derive the advantage of much published matter, the only key to which lies in the specimen shelves of a well-ordered scientific collection. How many mine owners are there who are unable to distinguish between volcanic and sedimentary rocks? Of course it is not essential to mining to be versed in all scientific technicalities, but as it is a well established principle of Geology that rocks and minerals are the same the world over, as much as water, if the miner could compare that which he knows, in his own mine, with the things in his line of business, that he reads about, he would surely understand much better what he is about. Intelligence is the first principle of business.

There must and will be established in the city of San Francisco, a Geological Museum. Will the State do something towards it by giving the public the benefit of its own valuable geological collection? The bulk of which is not to be got at because room and shelves will cost a little money, while boxes and storage cost almost nothing.

In some things we are public spirited enough. Why cannot our ambitious representatives cause the city to furnish the lot and the State to supply a fund for this most meritorious purpose?

If the intelligent miners and business men will it, the thing is done.

#### Photographic Mining Views.

We had the pleasure, a few days since, of examining some twenty photographic views recently taken of the North Bloomfield Gravel Mines. The pictures, which were taken by C. E. Watkins, of this city, are really masterpieces of the photographic art, and present the most perfect and life-like representation of hydraulic mining which we have ever seen depicted on paper. The mines are shown from several different points, and distant views are given of the line of the company's ditches, their dams, reservoirs, etc.

These views have been taken to accompany and illustrate an elaborate report upon the mines, which has been prepared by Mr. Attwood, M. E., who is acting in behalf of a company of English capitalists, with whom the owners of these mines are negotiating for the sale of the same. The accurate distinctness with which they are shown, in connection with the topography of the country, timber, etc., is really remarkable, and affords another instance of the value of the photographic art in aiding the engineer to describe the progress and condition of his work. It is perhaps superfluous for us to state in this connection that these are among the most valuable and extensive hydraulic mines in the State.

**BLOODED SHEEP FOR JAPAN.**—A Japanese agent purchased of J. B. Hoyt, of Solano county, six thoroughbred Spanish Merino and two graded sheep for shipment to Japan. They went forward by the steamer of Wednesday. There are no sheep in Japan, and the government in introducing them is determined to have none but the best. Japan is making most wonderful strides of progress in both her material and social developments. The work so well begun seems to gather force with its onward progress—and America is her type.



## DOMESTIC ECONOMY.

### Usages at the Table.

A person who wished to observe "the proprieties," inquired whether it was according to good usage to gnaw the corn from the cob, or if it should be cut into the plete. Generally, though not always, matters of table etiquette are founded in common sense. A bird can only be properly enjoyed by picking it, hence good usage enjoin the use of the fingers in removing the flesh from the bones of a bird, while one who should take the bone of a beefsteak, or a mutton chop, in his fingers, would be looked upon as ill-bred. The only way to get the full satisfaction. out of green corn is to gnaw it from the cob, and though the operation, especially to a foreigner who knows it not, is not an elegant one to witness, as it is performed at the best-ordered tables. So generally is it conceded that corn should be eaten from the cob, that silversmiths now make silver green corn handles; these are thrust into the large end of the cob, and allow it to be held without soiling the fingers. It is rather an awkward matter to cut the corn from the ear at table, especially if the knives are not sharp. If it is to be eaten in this way, it should be prepared before it is sent to the table. The operation of eating from the cob is much facilitated by drawing a sharp knife lengthwise of each row, in such a manner that the hull of each kernel will be split. When this is done, the digestible, nutritious contents of the kernels will slip out, and the often tough hull be left upon the cob. Those whose teeth are sensitive or defective will find this a great help.—*Rural Home.*

### The Laundry.

The sticking of starched clothes to the smoothing iron is one of the most vexatious things with which the laundress has to contend. This is partly owing to the adulterations in the starch, for which there is no remedy but to obtain a good article. Starch gloss is used more to prevent this sticking than for the glossy surface which it pretends to give. The latter is rarely, if ever, obtained in perfection without polishing iron and machinery. So, dear ladies, do not waste your time and strength in pursuit of it.

I learned this from a woman once employed in the laundry of a shirt and collar factory. She said also that the only gloss they used was hard soap. They shaved it off and boiled it up in the starch, and she used in her washing a piece as big as a nickel cent to a pint of starch. She starched her wet clothes in this, dried them, and then if wanted very stiff, dampened them by dipping them into cold starch in which a little soap had been dissolved, spread them between dry towels, rolled tight, for half an hour, and ironed smooth. I have long used this in various ways and find it always good. I prefer white soap.

If the clothes are already stiff I dampen by merely dipping them in soapy water. Care of the irons has much to do with success. They should not be permitted to stand on the stove to receive slops from the cooking. When not in use they should be kept in a dry place. If the face is once rust-eaten it is irretrievably injured. If rusted, however, rub them on emery or brown paper, but not on selt, as this tends to more rust. Beeswax may be used freely at any time, rubbing on the hot face of the iron, and then rubbing the iron thoroughly on cloth or brown paper. Some laundresses always do this before putting an iron to a starched surface.—*Home and Health.*

**HARDENING FATS.**—By melting soft fats in lime-water, and actively, stirring the same for two or three hours over the fire, then allowing the fat to cool, it will, in a day or two, become so hard as to be suitable for making candles. When re-melted it should be done with acidulated water to remove the excess of lime.

**A PRETTY ORNAMENT.**—Take a turnip, of convenient size and scrape out the inside, leaving a thick wall all around. Fill the cavity with earth, and plant in it some clinging vine or morning glory. Suspend the turnip with cords, and in a little time the vines twine around the strings, and the turnip, sprouting from below, will put forth leaves and stems that will turn upward and gracefully curl around the base.

### Why Boiling Milk Foams.

When milk is boiled its volume is very much enlarged, while water merely bubbles without any increase in bulk; why is it that the two liquids under the same circumstances behave so differently? When water is gradually heated to the boiling point the portion nearest the fire first reaches the temperature of 212 degrees, and the first particle that is heated to this degree is immediately converted into steam. As in its new form its volume is about 1,700 fold greater than in the liquid state, while its weight remains the same, it floats upward through the water, being held in a nearly spherical shape by the nearly equal pressure of water against it upon all sides. When it reaches the surface it is lighter than air, and consequently floats away in the atmosphere, and being invisible it is lost to our sight. The rapid formation of these little globules of steam, and their rise produces that peculiar disturbance of the liquid which we call ebullition or boiling. When milk is boiled, the same little globules of steam are formed but their surfaces are coated with an exceedingly thin film of the casein, which is one of the constituents of milk, and which has sufficient tenacity to prevent the bubbles from breaking when they reach the liquid. They consequently accumulate as they successively rise to the surface, forming the white foam which so frequently flows over the edge of the vessel into the fire.

**COOKING TOMATOES.**—The tomato is a vegetable that is hard to spoil, and it is generally acceptable even when rudely cooked. It is capable of so much change in the cooking as to afford a pleasing variety. One way of stewing tomatoes is to choose very ripe ones, skin, and slice, rejecting any hard parts. Put in a pan with salt, butter, and pepper, and cook very slightly, not more than ten minutes. Another way is to stew the tomatoes until thoroughly soft, rub them through a sieve, and then cook them down to the desired thickness. Butter, salt, and pepper, are the usual seasoning. Those fond of the flavor of onions will find that the addition of chopped onions while cooking, makes an excellent variety. Baked tomatoes are fine. Choose large fruit, and cut out a cavity at the stem end; fill this with a mixture of powdered cracker or bread crumbs, butter, salt, or other seasoning, set on a pan and bake until done. If managed carefully, the tomatoes retain their shape. Tomatoes may be boiled; cut them in halves crosswise and put them cut-side down, upon a gridiron over the fire. When the cut surface is seared, turn them and put salt, etc., on each, and cook with the skin side down until done.

**GRAHAM MUSH.**—Faith Rochester says: Does anybody want to know how to make Graham-mush? There are people who raise the best of wheat, year after year, and live on fine flour always, and have no idea how sweet, as well as healthful, the unbolting, or Graham flour is. Make Graham mush as you do corn-meal hasty-pudding, sifting the meal with your hand slowly into boiling water, stirring briskly meanwhile. A few minutes' boiling seems to cook it efficiently, though many cook it longer. Sweetened cream is an excellent dressing for it, and then if you add fresh herrings!—well, just try it! Many persons like it with unsweetened cream or milk, as they eat hasty-pudding. Wheaten grits are usually bought in paper parcels with directions for cooking. They are the wheat kernels with the outer woody fibre stripped off; and are excellent, especially for persons with inflamed stomachs who cannot bear the bran of Graham.

The neck of veal is rather a lean joint for roasting, and requires to be larded with bacon, or well buttered, and frequently basted. The scrag end must, of course, be cut away, so that six or seven chops only remain. An ordinary sized neck will take two hours' roasting. The larding is done thus: Cut some fat bacon into pieces two inches long and a quarter of an inch square; put the larding needle through the flesh about an inch and a half, then put one-third of the length of the piece of bacon on it, draw the needle out, and it will leave the bacon in the meat, about a quarter of an inch sticking up outside.

**FROZEN POTATOES,** if not permitted to thaw before being cooked, can be baked so as to be as good as though never frozen. They can not be boiled, however, nor even baked if submitted to the usual cleansing process of washing.

### Domestic Receipts.

**RASPBERRY VINEGAR SYRUP.**—One pint of juice, two pints of vinegar, four pounds and a half of sugar. Prepare the juice as usual, adding the vinegar with it. Strain the juice and boil to the pearl. A very superior raspberry vinegar is made by taking three pounds of raspberries, two pints of vinegar, and three pounds of sugar. Put the raspberries into the vinegar without mashing them, cover the pan close, and let it remain in a cellar for seven or eight days; then filter the infusion, add the sugar in powder, and finish in the water-bath. This is superior to the first, as the beautiful aroma of the fruit is not lost in the boiling.

**TOMATO CATSUP.**—This sauce being a universal favorite, the following recipe, for making it at home is worthy of notice. Several of our frugal house-wives have tried it, and it proved to be a success: Scald and peel 8 quarts of ripe tomatoes; add 1 quart of strong vinegar, 6 teaspoonfuls fine salt, 4 ditto sugar, 2 ditto black pepper, 3 ditto red pepper, 2 ditto ground cloves, 2 ditto allspice, 2 ditto cinnamon; let all boil together about two hours, stirring it often; strain through a sieve, and when cool bottle, and cork it tightly. Keep in a cool place and it will remain good for years. Any one who tries this experiment will be surprised at the large quantity of excellent catsup obtained for a small sum of money.

**MAKE YOUR OWN INDELIBLE INK.**—The cheapest material for marking linen is coal-tar diluted with benzine to the proper consistency. Another inexpensive prescription is to piece iron filings or old nails in strong vinegar; let them stand many days, and filter the liquid. Another way is to take equal quantities of vermilion and coppers, and rub them up with some oil varnish. The first and last preparations have to be used with a fine brush; the second with a common pen.

**TO PICKLE ONIONS.**—Take some nice onion and throw them into a tea-kettle boiler half full of boiling water, and let them remain ten minutes. Then take them out quickly and lay them between two cloths to dry; boil some vinegar with the ginger and whole pepper, and when cold, pour it over the onions in glass jars and tie them close over.

### Mechanical Hints.

**TO PREVENT THE INCORUSTATION OF GLUE-KETTLES.**—An exchange in speaking of glue-kettles, tells us of a simple improvement which will be of use to joiners, pattern-makers, and others using glue: "Every workman who makes frequent use of glue has been annoyed by the tendency of the glue which runs down from the brush to dry and harden upon the inside of the kettle—the incrustation thus formed sometimes reaching half an inch in thickness, or even more. To overcome this difficulty, three or four small holes should be drilled in the side of the kettle, close to the top rim. The kettle being set into the boiler, the steam rising from the water surrounding the kettle passes through the holes and keeps the interior of the kettle above the surface of the glue constantly moist. The glue which drips from the brush will therefore run down and rennet with the mass, instead of hardening and adhering to the sides, and the kettle is thus kept clean, however much used. The holes should be confined to one-half or two-thirds of the circumference of the kettle, in order that a place may be left at which to pour out the glue when desired."

**TO CLEAN OIL-PAINTED SURFACES.**—Take a piece of soft flannel, put it in warm water, and squeeze it till it feels dry; next dip it gently on to some very fine pulverized French chalk, and rub the painted surface with the flannel; the effect will be the removal of all dust, greasy matter and dirt; the surface is next washed with a piece of wash-leather. This method does not injure the paint like soap, and produces a very good result.

**TO WASH BRASS FIGURES OVER WITH SILVER.**—Take one ounce of aqua-fortis, and dissolve in it over a moderate fire one drachm of good silver cut small, or granulated; this silver being wholly dissolved, take the vessel off the fire, and throw into it as much white tartar as is required to absorb all the liquor. The residue is a paste, with which you may rub over any work made of copper, and which will give it the color of silver.

A bit of soap rubbed on the hinges of a door will prevent their creaking.

## LIFE THOUGHTS.

WHAT a man does is the real test of what a man is.

Be praised not for your ancestors, but for your virtues.

A HYPOCRITE is one that neither is what he seems, nor what he is.

Good qualities are incomprehensible to those who have them not.

MODESTY seldom resides in a breast that is not enriched by noble virtues.

How canst thou be a judge of another's heart that dost not know thine own.

PRICELESS as the gift of utterance may be the practice of silence in some respects far exceeds it.

In striving for the attainment of any object, the heart must be in the work for such attainment, and not set on the object.

HE is happy whose circumstances suit his temper; but he is still happier who can suit his temper to his circumstances.

SOME THINGS YOU WILL NOT BE SORRY FOR.—For hearing before judging.

For thinking before speaking.

For holding an angry tongue.

For stopping the ear to a tale bearer.

For refusing to kick a fallen man.

For being kind to the distressed.

For being patient to all.

For doing good to all men.

For walking uprightly before God.

For lending to the Lord.

For laying up treasure in heaven.

For asking pardon for all wrongs.

For speaking evil of no man.

For being courteous to all.

### Evil Speaking.

Speaking evil of others is one of the most unamiable habits that can be acquired, and one that leads to infinite mischiefs. It is not always easy to avoid, for there are a great many persons in the world who are not what they ought to be, who do many things that they ought not to do. It is hard for a blunt, generous mind to refrain from expressing itself about mean people and mean acts; there is something in meanness and dishonesty that rouses the indignation of such a mind and it likes the luxury of denouncing them in bold and unparing terms. But the practice, as a practice, is a troublesome and dangerous one. There are occasions when it is our duty to speak out in exposure of wrong; but, in general, it is best to abstain from speaking evil, even of evil persons. We are not made judges of others' actions; no one has the right to assume the character of arbiter and censor. Even the best of us has his faults, and if every one should presume to denounce the vices and misconduct of others, the world would be given up to defamation. We may see and hear much that we do not admire and can not like; we may become cognizant of many evil deeds done by evil persons; but it is the part of wisdom and discretion to pass them by without notice, unless speaking of them cautiously may be necessary as a warning to a friend. We all have enough enemies in this world without provoking others by ill-tempered comments. The enmity of evil men is a thing to be avoided, for while it can do us no good, it may do us much harm. Besides, we may make mistakes in the haste of honest indignation, and speak evil of good men for acts we do not understand. Such a mistake is worse than the other; for while it is impudent to promiscuously denounce evil men, it is a cruel wrong to defame a good man.

**CHOICE WORDS.**—Cherish thy mother; brief perchance the time may be that she will claim the care she gave; past are her hopes of youth, her harvest prime of joy on earth; her friends are in the grave; but for her children she could lay her heart gladly to rest among the cherished dead. O mother mine, grant I ne'er forget, whatever may be my grief, or what my joy, the unmeasured, unextinguishable debt I owe thy love, but make my sweet employ ever, through my remaining days to be to thee as faithful as thou wert to me.—*Bethune.*

It is not work that kills men; it is worry. Work is wholesome; you can hardly put more work upon a man than he can bear. Worry is rust upon the blade. It is not revolution that destroys the machinery, but the friction.

A word of kindness is seldom spoken in vain. It is a seed which, even when dropped by chance, springs up a flower.



## Business Cards.

**E. J. FRASER, M. D.,**  
SURGEON,  
No. 102 Stockton Street, San Francisco, Cal.

**JOHN ROACH, Optician,**  
Has removed from 527 Montgomery street to  
540 Washington street,  
East of Montgomery.  
Surveying Instruments made, repaired and adjusted  
27v17-3m

**Farmers and Mechanics**  
**BANK OF SAVINGS,**  
No. 235 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.  
**H. DUTTON, President.**  
**GEO. M. CONDEE, Cashier.** 19v16-3m

**BARTLING & KIMBALL,**  
**BOOK BINDERS,**  
Paper Rulers and Blank Book Manufacturers.  
605 Clay street, (southwest cor. Sansome),  
SAN FRANCISCO.  
16v12-3m

**CO-OPERATIVE UNION**  
Grocery and Provision Store  
Removed to 722 Market street, bet. Kearny and Dupont  
SAN FRANCISCO.  
apl-14

**SAN FRANCISCO**  
**CORDAGE COMPANY.**  
Mantle Rope of all sizes. Also, Bale Rope and Whale  
Line constantly on hand. Mining Rope of any size  
and length manufactured to order.  
**TUBBS & CO., Agents,**  
611 and 613 Front street.

**SAN FRANCISCO MILL.**  
**HOBBS, GILMORE & CO.,**  
Manufacturers of Boxes,  
Market Street, bet. Beale and Main.  
For sale—Mahogany, Spanish Cedar, and other Woods.

**JOSEPH GILLOTT'S**  
**STEEL PENS.**  
Sold by all Dealers throughout the World.

**J. F. PAGES,**  
**SEAL ENGRAVER,**  
**AND LETTER CUTTER.**  
Brass and Steel Stamps and Dies, 608 Sacramento street,  
San Francisco. Orders by express promptly attended to.

**L. SCHUMANN,**  
**PIONEER**  
**Meerscham Pipe Manufacturer,**

**No. 341 KEARNY STREET,**  
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.  
MEERSCHAUM MOUNTED WITH SILVER. Meerscham  
Pipes Bottled and Repaired. Amber Mouth-pieces Fitted.

**The Merchants' Exchange Bank**  
**OF SAN FRANCISCO.**  
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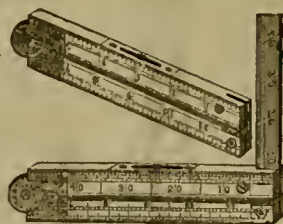
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Will Not Explode!  
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We are the Fire Underwriters of N. Y. recommend its use  
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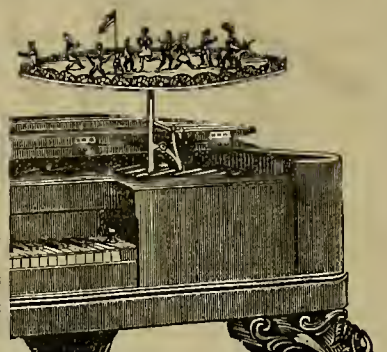
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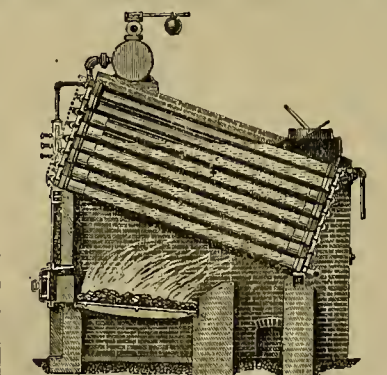
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In its application as a Slope Level it is especially  
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Price per gallon, for inside work.....\$2 00  
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3v23-13

## Travelers' Guide.

CENTRAL PACIFIC RAILROAD.					
Passenger	Express	October 2,	Express	Passenger	
Sunday	Train	1871.	Train	Sunday	
excepted	Daily.		Daily	excepted	
4:00 P.M.	8:00 A.M.	San Francisco	5:45 P.M.	12:30 P.M.	
4:42 P.M.	8:40 A.M.	Oakland	5:12 P.M.	11:30 P.M.	
5:30 P.M.	7:30 A.M.	San Jose	5:30 P.M.	12:15 P.M.	
8:20 P.M.	12:25 P.M.	Stockton	5:20 P.M.	7:52 P.M.	
10:30 P.M.	2:10 P.M.	Sacramento	11:45 A.M.	6:00 A.M.	
	4:10 P.M.	Marysville	9:10 A.M.		
	7:50 P.M.	Sosina	5:40 A.M.		
	2:30 P.M.	Sacramento	11:45 A.M.		
	5:25 P.M.	Colfax	8:45 A.M.		
	1:15 A.M.	Reno	1:00 A.M.		
	9:10 A.M.	Winnemucca	4:05 P.M.		
	12:00 M.	Battle Mountain	1:25 P.M.		
	4:40 P.M.	Elko	8:45 A.M.		
	6:20 A.M.	Ogden	5:20 P.M.		

**SAN JOSE BRANCH**—LEAVE SAN FRANCISCO at 9:10 a.  
m. daily (except Sundays), and 9:11 a. m. daily. Returning  
leave San Jose at 7:30 a. m., daily, and at 3:50 p. m., daily  
(except Sundays).  
**OAKLAND BRANCH**—LEAVE SAN FRANCISCO, 6:50,  
8:10, 9:10, 10:20 and 11:10 a. m., 12:00, 1:50, 3:00, 4:00, 5:15, 6:30, 8:30  
and 11:30 p. m. (10:20, 11:10 and 3:00 to Oakland only).  
**LEAVE BROOKLYN**, 6:15, 6:30, 7:40, 8:50 and 10:00 a. m., 1:30,  
2:40, 4:50, 6:10, and 10:10 p. m.  
**LEAVE OAKLAND**, 5:25, 6:40, 7:50, 9:00, 10:10, 11:00 and 11:50  
a. m., 1:40, 2:50, 3:50, 5:05, 6:20 and 10:20 p. m.  
**ALAMANDA BRANCH**—LEAVE SAN FRANCISCO, 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and  
5:30 to Fruit Vale only).  
**LEAVE HAYWARD**, 4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
**LEAVE FRUIT VALE**, 5:25, 7:35, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.  
\*Sundays excepted.

CALIFORNIA PACIFIC RAILROAD.					
Passenger	Express	San Francisco	Express	Passenger	
Sunday	Train		Train	Sunday	
excepted	Daily.		Daily	excepted	
4:00 P.M.	8:00 A.M.	San Francisco	11:30 A.M.	7:30 P.M.	
5:50 P.M.	9:45 A.M.	Vallejo	9:45 A.M.	5:45 P.M.	
8:00 P.M.	12:45 P.M.	Calistoga	7:30 A.M.	2:45 P.M.	
9:30 P.M.	2:15 P.M.	Marysville	6:30 A.M.	1:00 P.M.	
8:15 P.M.	12:15 P.M.	Sacramento	7:30 A.M.	5:30 P.M.	

Only one train Sundays—leaving San Francisco 8:30 A. M.,  
Calistoga 3 P. M., Marysville 10:15 A. M., and Sacramento  
2:45 P. M.

SAN FRANCISCO & N. PACIFIC R. R.					
Passenger	Express	San Francisco	Express	Passenger	
Sunday	Train		Train	Sunday	
excepted	Daily.		Daily	excepted	
2:15 P.M.	8:00 A.M.	San Francisco	11:00 A.M.	7:30 P.M.	
4:35 P.M.	9:45 A.M.	Donahue	8:45 A.M.	5:45 P.M.	
5:00 P.M.	12:45 P.M.	Petaluma	8:20 A.M.	5:20 P.M.	
5:58 P.M.	1:30 P.M.	Santa Rosa	7:30 A.M.	5:00 P.M.	
6:45 P.M.	2:15 P.M.	Healdsburg	6:45 A.M.	4:45 P.M.	

\*Sundays excepted.  
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construction of cars for the comfort and safety of passen-  
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Pacific Saw Factory, Nelson & Doble, Messrs. Hobbs &  
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nials and Directions.

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## THE MEZQUITE BEAN.

Two quite different trees are known by this name in those parts of the United States, south of lat. 35°, and west of the Mississippi river. We give illustrations to show the differences between them, by which it will be seen that the foliage is similar, and both are thorny, but that the pods are as different as any pods of the great *Leguminous* family of plants can well be. The trees themselves are similar in size, growing about 35 feet high, and spreading like apple trees so as to cover a width of about thirty feet or more, although this form is probably the result of the dry climate in which they vegetate.

Of the name "Mezquite" we can only ascertain so far that it means, in Spanish, a "Mosque," and may be applied to these trees as well as to a kind of grass, from the shape of their turban-like clumps.

These trees are distinguished by Americans as the flat or honey pod, and screw-pod Mezquite. Their marked botanical differences require that we give separately the history and description of each.

The Honey Mezquite—*Algarobia glandulosa*.

This tree was discovered by Dr. E. P. James, U. S. A., on Long's expedition to the Rocky mountains, in 1820, on the Canadian river, its northern limit, where it is only a shrub. Dr. Torrey described it in the annals of the New York Lyceum of Natural History, vol. II, p. 192, giving a plate illustrating its chief characters, by the name *Prosopis glandulosa*. But as the tree differs much from the East Indian *Prosopis spicigera* (of which the pods are eaten as a condiment,) the Spanish name "Algaroba" has been Latinized to apply to this and several more southern American species.

"Algaroba" itself is a second hand name, being the Spanish for "The Carob," a tree with pods used for food around the Mediterranean. In this we find also the origin of "locust tree." These pods were supposed by the early translators of the Bible to be the "locusts and wild honey" on which John the Baptist lived, they knowing nothing of the insect of that name, and therefore the Carob is called in Spain "St. John's Bread." Our eastern honey locust having sweet pods was supposed by immigrants to be a variety of the Saints' "Locust Tree." But as a botanical name for our trees, it is sufficient, not being used for the Carob by botanists.

The specific name is derived from little glands at the base of the leaves. The figure shows the characters of the leaves, flowers and pods. The latter are about 9 or 10 inches long, and contain about a dozen beans, surrounded by a sweet pulp as in the honey locust. Both beans and pulp are eaten by the Indians, and often by white men; but they are useful chiefly as food for horses, being produced in great abundance and requiring no preparation, as they eat pods and all.

The trunk has a diameter of 18 inches or more, but branches usually within 10 feet from the ground. It is however, invaluable for posts and many other purposes. Dr. J. M. Bigelow in Vol. 4 Pacific R. R. reports says: "Fences made of this timber in southern Texas have been known to stand in a perfect state of preservation more than fifty years. From its hardness and durability, no doubt but that it would make railroad ties equal to the lignumvite of tropical climates, to which it is, indeed, closely allied, belonging to the section Mimoseæ of leguminous plants." By sowing the seeds close together in rich sandy loam, there is no doubt that the trees might be made to grow much taller and straighter; thinning them out from time to time to make room, or using the saplings for poles etc. This tree also produces a valuable gum, resembling gum arabic, (the product of the related *Acacias* in Arabia,) and it is said that a large

amount of this gum is exported from Mexico.

As before mentioned, it is limited naturally by the parallel of 35° and though

one spot west of these mountains, at the borders of "Laguna Sal," between San Bernardino and San Diego, where it grows at least 15 feet high. It seems to grow in

THE HONEY MEZQUITE—*ALGAROBIA GLANDULOSA*.

widely diffused in Texas, is found west of the Rocky Mountains chiefly in the bottomlands of the rivers, most abundantly in the Colorado valley. It follows the Mojave

Lower California, and is said to grow 40 or 50 feet high in Mexico.

Dr. Bigelow found it growing in Arizona east of the Colorado river, latitude 34°

THE SCREW-POD MEZQUITE—*STROMBOCARPA PUBESCENS*.

River valley west to the foot of the Sierra Nevada, becoming gradually smaller until it is a mere shrub two or three feet high, at about 2,000 feet. It is known also in

at an elevation of about 3,500 feet, and as the winter is quite severe there as well as in parts of Texas, we are obliged to look to some other influence than cold for its

absence from most of California. This cause is probably our long dry season; for in Arizona the summer is accompanied by heavy showers, so that in many portions it is moister than the winter. Along the Colorado, the river usually overflows its bottom-lands in May, thus ensuring a summer growth.

It is therefore probable that with moderate irrigation this valuable tree would grow in most of the warm valleys of California south of San Francisco, and perhaps much further north, where it might not need watering. Whether the alkaline soil of most of its native regions, (and Laguna Sal,) is essential to its growth, is uncertain. Where it would not make timber it would probably make an admirable hedge plant.

The Screw-pod Mezquite—*Strombocarpa Pubescens*.

The remarkable form of the pods of this tree have given its English name, which is translated in the botanic name of the genus, and used also by the Mexicans in the Spanish form of "Tornillo." It does not seem to extend quite as far north, nor is it so large and valuable a tree. The pods, however, are good horse-feed, and are even eaten by the Colorado Indians, powdered to a coarse meal and made into a kind of bread.

The tree is very similar in form and foliage to the Honey Pod species, so much so that the able botanist Dr. Torrey finding the pods, together with the leaves of the latter, in Fremont's collection, described and figured them as a new species *Prosopis odorata*. (Fremont's Report for 1845, p. 313, pl. 1.)

Fremont mentions this tree as an *Acacia*, extending up the valley of the Rio Virgen, Arizona, to near latitude 37° and over 4,000 feet elevation. As he did not distinguish the *Algarobia* it is very probable that the most northern were that species.

Although the pods are so different, there are species of *Algarobia*, (or *Prosopis*), which have the pods twisted in various degrees from the nearly flat to the strongly twisted form.

## PATENTS &amp; INVENTIONS.

## Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

## FOR THE WEEK ENDING OCT. 24.

ROLLER SKATE.—John L. Boone, San Francisco, Cal., assignor to himself and Milton A. Wheaton, same place. Antedated October 3, 1871.

WHEELBARROW.—William McKibbin, San Francisco, Cal.

LOCOMOTIVE.—William D. Arnett, Denver City, Col. Ter.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

## New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

STICKEL QUARTZ MINING Co.—Capital stock, \$1,000,000, in 10,000 shares. Trustees: G. Palachs, Smith Brown, E. G. Wilson, C. E. McLans and C. Hartson.

MONTEREY WATER Co.—Capital stock, \$3,000,000, in 30,000 shares. Trustees: R. M. Shackelforde, C. S. Abbott, F. B. Boswell, J. S. Kennedy, A. B. Cathcart, M. P. Hall and J. Sroufe.

SAN LORENZO CANAL Co.—Capital stock, \$1,200,000, in 12,000 shares. The Trustees are the same as in the incorporation immediately above.

GLOBE MINING Co.—Capital stock, \$2,000,000, in 20,000 shares. Trustees: A. K. P. Harmon, J. D. Fry, J. C. Flood, C. B. Land, and D. A. Jennings.

NEWTON BOOTH MINING Co.—Capital stock, \$1,200,000, in 12,000 shares. Trustees: C. J. Hutchinson, J. B. Felton and O. H. La Grange.

EL DORADO MINING Co.—Capital Stock, \$1,000,000, in 10,000 shares. Trustees: T. Curtis, J. Roberts, Jr., J. W. Bost, F. O'Farrell and T. J. Owens.

SAN FRANCISCO AND TUNNEL MINING Co.—Capital stock, \$3,000,000: Trustees: S. B. Boswell, R. Cheney, T. H. Selby, P. Moroney, W. P. Pritchard, R. W. Thompson and J. W. Clark.

The following have filed certificates with the County Clerk, Sacramento.

TRY VALLEY CANAL, IRRIGATION AND MANUFACTURING Co.—Capital stock, \$10,000, in 10 shares. Trustees: J. Morrow, W. W. Hill and H. Dixon.



## Mining and Other Companies.

During the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—hence the very latest hour we can receive advertisements.

## Altona Gravel Mining Company—Location

of works, Grass Valley, California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of October, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 4th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 26th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, DAVID WILDER, Secretary, Office, No. 21 Merchants' Exchange, California street, San Francisco, Cal. nov4-3w

ALTONA GRAVEL MINING COMPANY—LOCATION OF WORKS, Grass Valley, California. At a meeting of the Board of Trustees of said company, held on the 21st day of October, 1871, the order adopted on the 21st day of October, 1871, levying an assessment of 25 cents per share was rescinded. nov4-1w DAVID WILDER, Secretary.

## Eagle Quicksilver Mining Company—Location

of works, Santa Barbara County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of October, 1871, an assessment of forty (40) dollars per share was levied upon each and every share of the mines of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any share upon which said assessment shall remain unpaid on Thursday, January 4th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, WM. D. WATSON, Secretary, Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. aug3d

## Highland Silver Mining Company—Location

of works, Railroad District, Elko County, State of Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of October, 1871, an assessment of (No. 3) of Ten Cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, California. Any stock upon which said assessment remains unpaid on Monday, the 13th day of November, 1871, will be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, DAVID WILDER, Secretary, Office, No. 21 Merchants' Exchange, California street, San Francisco, Cal. oct4-4w

## Kearsarge Mining Company—Location

of works, Kearsarge District, Inyo County, California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of October, A. D. 1871, an assessment of five (\$5) dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 10, Express Building, northeast corner of California and Montgomery streets, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Monday, the 27th day of November, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 28th day of December, A. D. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, J. S. L. KIRK, Secretary, Office, Room No. 10, Express Building, northeast corner of California and Montgomery streets, San Francisco, California. oct28-4w

## Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of October, 1871, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said company, payable immediately, in U. S. gold and silver coin, to the Secretary, at his office, No. 221 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, R. H. CORNELL, Secretary, Office, 220 Clay street, San Francisco, oct21-4w

## Nevada Land and Mining Company—Location

of works, Spruce Mountain, Antelope and Clifton Districts, Elko County, State of Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of October, 1871, an assessment of four (4) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Saturday, the 10th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, WM. D. WATSON, Secretary, Office, Room 5, No. 302 Montgomery street, San Francisco, California. oct14-4w

## Noonday Silver Mining Company—Location

of works, White Pine Mining District, White Pine County, State of Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 10th day of October, 1871, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 27th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, JOSEPH MAGUIRE, Secretary, Office, Room 5, No. 302 Montgomery street, San Francisco, California. oct14-4w

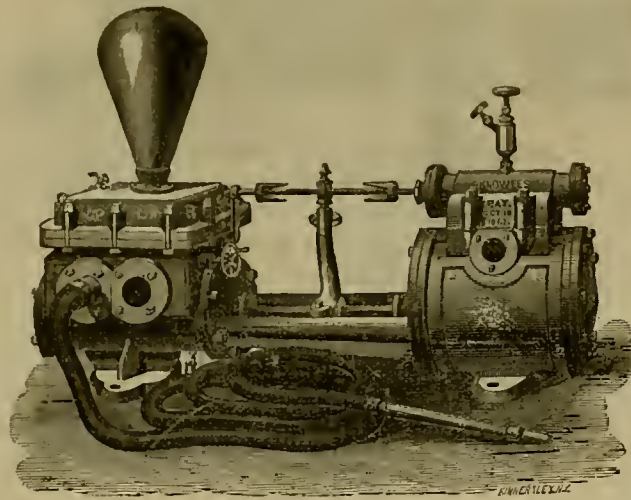
## Pocahontas Gold Mining Company—Location

of works, Mud Springs, El Dorado County, California. Notice—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 18th day of September, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Am't.  
L. A. Booth, Trustee } 49 100 \$300 00  
(for P. O. M. Co., )  
And in accordance with law, and an order of the Board of Trustees, made on the 18th day of September, 1871, so many shares of each parcel of said stock, as may be necessary, will be sold at public auction, at the office of the company, Room 26, Hayward's Building, 419 California street, San Francisco, California, on Monday, the 27th day of November, 1871, at the hour of 12 o'clock m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. D. A. JENNINGS, Secretary, Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal. nov4-4w

## KNOWLES' PATENT STEAM PUMP.

Awarded First Premium and Diploma

Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Premium and Diploma at State Fair, and Gold Medal Recommended.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE CHIEF MASTER MECHANIC, SACRAMENTO, CAL., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly, A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, OREGON, April 22, 1871.

Mrs. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best pump in use.

Yours respectfully, O. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 21st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly, C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.

Messrs. KNOWLES & SIBLEY, 22 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly, GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, NEW YORK, June 3, 1871.

Messrs. KNOWLES & SIBLEY, 22 and 24 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully, WM. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDAUQUA, Pa., June 1, 1871.

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc., EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., HELLERTOWN, Northampton County, Pa., May 26, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.

Yours very respectfully, G. W. WHITAKER, President and Superintendent.

OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly, P. SAULT, Superintendent.

OFFICE OF RED BLUFF WATER WORKS, Red Bluff, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc., JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand.

24v22-60w

## Ophir Copper, Silver and Gold M. Com-

pany—Location of works, Ophir, Placer County, Cal. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of October, 1871, an assessment of sixty (60) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, R. G. BRUSH, Office, No. 314 California Street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 25th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 18th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, R. G. BRUSH, Secretary, Office, 314 California Street, San Francisco, Cal. oct28-3w

## Piermont Milling and Mining Company—

Location of works, Piermont Mining District, White Pine County, Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 10th day of September, A. D. 1871, an assessment (No. 1) of one dollar and twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the company's office, 418 California street, San Francisco. Any stock upon which said assessment shall remain unpaid on Monday, the 9th day of October, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock p. m. of Wednesday, the 8th day of November, A. D. 1871, will be sold to pay the delinquent assessment, together with the costs of advertising and expenses of sale. J. W. CLARK, Secretary, oct4-4w

POSTPONEMENT.—The day for deeming stock delinquent on the above assessment is hereby postponed until Thursday, the 9th day of November, A. D. 1871, and the sale there of until Friday, the 8th day of December, A. D. 1871. By order of the Board of Trustees, J. W. CLARK, Secretary, oct4-4w

## Seaton Mining Company—Location of

works, Drytown Mining District, county of Anasos and State of California. Notice is hereby given that at a meeting of the Trustees of said company, held on the 27th day of October, 1871, an assessment of \$20 per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 438 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 24th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 30th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees, JOEL F. LIGHTNER, Secretary, Office, at No. 438 California street, San Francisco, California. nov4-4w

## Silver Sprout Mining Company—Location

of works and mines, Kearsarge District, Inyo County, State of California. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of September, 1871, an assessment of twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 318 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, T. B. WINGARD, Secretary, Office, No. 318 California street, San Francisco, Rooms Nos. 1 and 2, second floor. oct14-4w

## Starlight Gold and Silver Mining Company

—Location of works, Humboldt County, Nevada. Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of November, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 15th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 2nd day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, DAVID WILDER, Secretary, Office, No. 23 Merchants' Exchange, California street, San Francisco, Cal. nov4-4w

## MINING BUREAU

—OF THE—

## Pacific Coast.

Sacramento City Office at Vice-Consulate of France, San Francisco Office, 331 Montgomery street (Stevenson's Building), Room 32, Third floor.

J. BERTON, President.

E. P. HUTCHINS, Secretary.

N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.

## The "New North West,"

DEER LODGE, MONTANA.

JAS. H. MILLS, Editor and Publisher.

The above journal, published in the largest gold-producing Territory, and circulating largely in the great Quartz and Placer Districts of the West Side, is an excellent medium for California Manufacturers and Merchants to reach and acquire the trade of Montana. Liberal rates will be made. Copies sent on application to the publisher.

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## Gutta Percha and Rubber Manufacturing COMPANY,

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Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose, Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Pure Vulcanized Sheet Rubber, Fire Buckets.

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Particular attention paid to Jobbing Work and Repairs.N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.  
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STEAM ENGINES,

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Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR  
Pracy's Celebrated Governor.TURNING LATHES, Etc., constantly on hand.  
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Rolling Mill Company,

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RAILROAD AND OTHER IRON  
Every Variety of Shafting,Embracing ALL SIZES of  
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

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The highest price paid for Scrap Iron. 9v143m

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Especially adapted to Every Variety of Railroad Use, including

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ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

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F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

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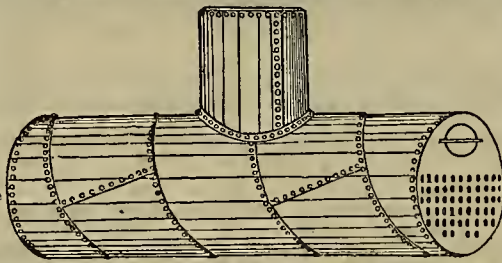
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SPIRAL BOILER.



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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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MACHINERY AND CASTINGS  
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Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

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WILCOX'S PATENT WATER LIFTERS,

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REAPER AND MOWER SECTIONS, BARS  
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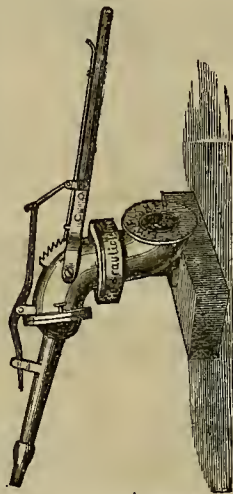
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &amp;c. Orders left with O. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

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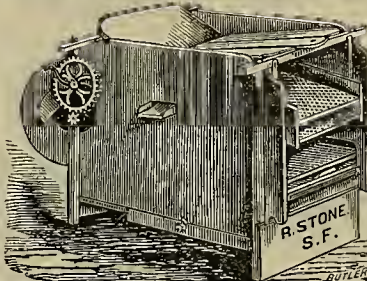


9v23-4f

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MACHINES MANUFACTURED TO ORDER,

to throw from one to an eight-inch Stream.

THE PATENT  
Novelty Mill and Grain Separator

Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

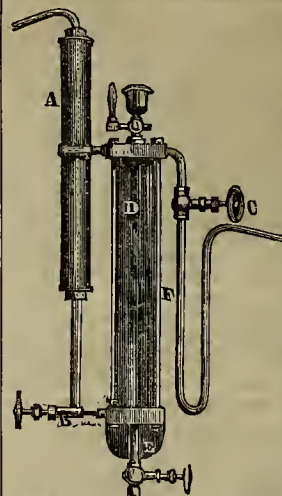
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ALL KINDS OF BRASS, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch at PRICES MODERATE. J. H. WOOD V. KINGWELL

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Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION:—D, is a glass chamber which contains the lubricant. C is a valve, connecting with cup which introduces the lubricant into chamber D. F is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into this instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the ejection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C.

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## Patent Steam Stamp Mill

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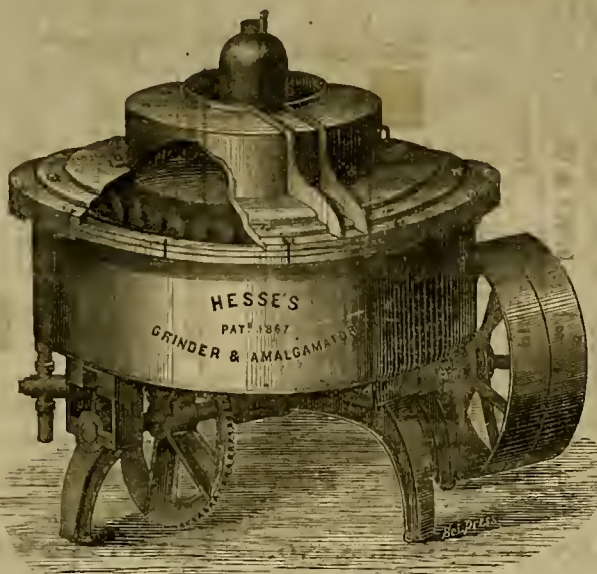
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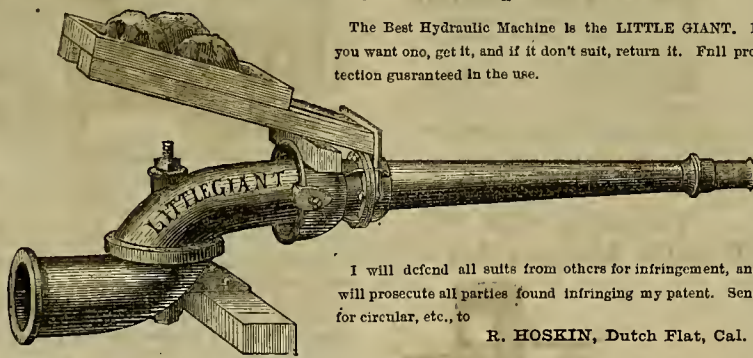
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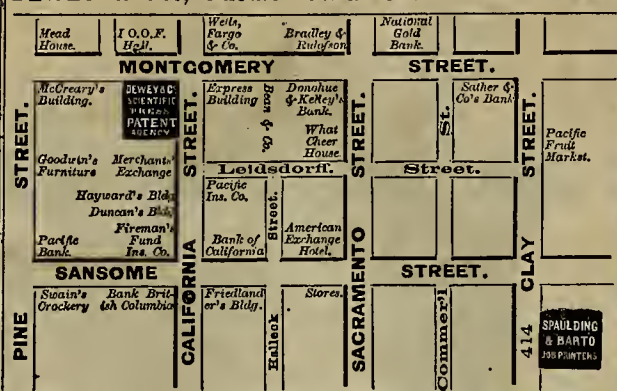
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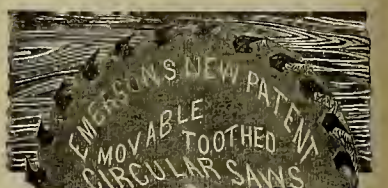
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SAN FRANCISCO, SATURDAY, NOVEMBER 11, 1871.

VOLUME XXIII.  
Number 19.

## Academy of Sciences.

The regular semi-monthly meeting was held on Monday evening the 6 inst., President Blake in the chair.

### A New Polishing Material.

Professor Davidson presented a specimen obtained by A. W. Chase, of the Coast Survey, resembling in appearance French prepared chalk. The Professor said it was found in nodules varying in diameter from four or six inches to as many feet. It was the best substance for polishing that he had ever seen, leaving no scratch. It was found in extensive deposits.

### Rara Avis.

Mr. Harford exhibited a large white bird, which had been shot on the San Miguel Island while flying, and wanted to know its species.

Dr. Cooper said it was called at Fort Yuma the "Colorado Turkey." In fact it was the Wood Ibis. Several of the species had been shot near Stockton, but it was very scarce on this part of the coast.

### Indian Relics.

Mr. Harford also displayed several Indian curiosities dug by himself and W. G. Blunt, both of the Coast Survey, who are now studying the traces of the now extinct race of Indians formerly occupying the San Miguel, Santa Rosa and Santa Cruz islands. They were taken from Indian graves, or pits, one of which he mentioned as being about 25 feet in length. The curiosities consisted of heads, arrowheads, pipes, rude ornaments, paint, etc.

Prof. Davidson said the explorations had proved the islands to have been extensively populous. It was not improbable that centuries ago a Japanese or Chinese junk may have been wrecked and the crew drifted to one of these islands and mixed with the natives.

### Diamond Deposit.

Mr. Hanks presented samples of the diamond deposit of South Africa, brought from thence by J. H. Riley—one of the first layer, which has to be pierced to get to the diamond deposit; another of the deposit in which the diamonds are found, and another of pebbles found associated with the diamond. The last, it was remarked bore great similarity to the pebbles found at the north of the Klamath river, where microscopic diamond dust was found; also on the Pescadero.

### Apple Pests.

Dr. Gihbons exhibited several half-grown apples, which bore many insects attached to the rind, affecting the growth of the apple by causing indentations where they appeared. They would not usually be observed by a person eating the apple; and thus might be introduced into the stomach in large numbers.

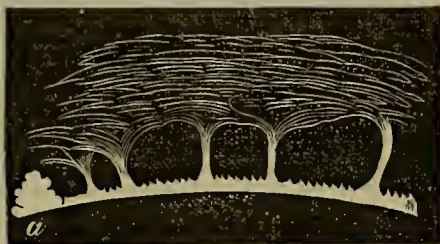
Dr. Cooper drew on the blackboard the sketch of a fish, a connecting link between a fish and reptile, of a species now extinct. It was as represented by Agassiz from a single tooth, found on this coast and sent East.

Professor Davidson said the recent developments made by the aid of telegraphic communication proved that San Francisco was four minutes further west from Greenwich than had heretofore been supposed—the old calculation being 8 hours 9 minutes 34.19 seconds, and the present being 8 hours 9 minutes and 33.13 seconds.

## A Remarkable Explosion in the Sun.

Prof. C. A. Young, of Dartmouth College, an astronomer of considerable note, who has been making some careful investigations with regard to the physical condition of the sun, recently witnessed an outburst of solar energy, most remarkable for its suddenness and violence, and one which shows us what can be done in the way of explosions when all the conditions are on a scale of grandeur commensurate

Fig. I.



with the magnitude and anomalous physical condition of our solar luminary.

The professor employs in his examination, an instrument lately introduced and known as the telespectroscope,—a combination of the two instruments, whose names are embodied in that word.

On the 6th of September last, about noon, while the professor was viewing the sun, he observed an enormous protuberance or hydrogen cloud, of the ordinary

Fig. II.



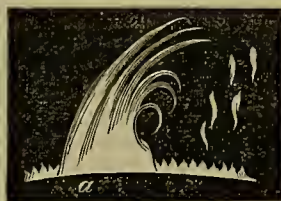
brightness of sun clouds, on the eastern limb of the sun, which was singular in nothing but its extraordinary size. This cloud remained without any noticeable change until about the same hour the next day, when a brilliant bright lump began to develop itself, shaped much like an ordinary summer thunder-head near the horizon, in the earth's atmosphere.

The appearance of this cloud and the "thunder-head" development is shown in Figure 1. The main cloud appears to much resemble a huge overhanging cloud in our tropical seas, as it is sometimes observed with two or more water spouts connecting it with the ocean. These ap-

pearances are not uncommon to the sun's upper atmosphere, and have sometimes been compared to a banyan grove. The length of this cloud, as was ascertained by measurement at the time, was about 100,000 miles, by some 54,000 miles in height. The heights of the filaments or columns, which appeared to support the cloud, were about 15,000 miles. Such was the appearance presented when the Professor was called away from his instrument about noon the 7th of September. What he witnessed on his return we give nearly in the Professor's own words, as communicated to the *Boston Journal of Chemistry*, from which paper we have also reproduced the accompanying illustrations:—

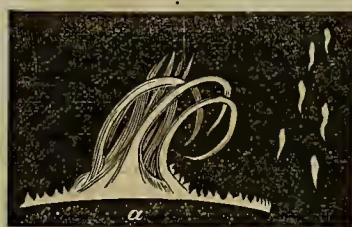
What was my surprise, then, on returning in less than half an hour, to find that in the mean time the whole thing had been literally blown to shreds by some inconceivable up-rush from beneath. In place of the quiet cloud I had left, the air, if I may use the expression, was filled with flying debris—a mass of detached vertical fusiform filaments, each from 4,500 to 13,500 miles long by 900 to 1,400 miles wide, brighter and closer together where the pillars had formerly stood, and rapidly

Fig. III.



ascending. When I first looked, some of them had already reached a height of nearly 100,000 miles, and while I watched them they rose with a motion almost perceptible to the eye, until in ten minutes the uppermost were more than 200,000 miles above the solar surface! This was ascertained by careful measurement; the mean of three closely accordant deter-

Fig. IV.



minations gave 211,050 miles as the extreme altitude attained, and I am particular in the statement because, so far as I know, chromospheric matter (red-hydrogen in this case) has never before been observed at an altitude exceeding 135,000 miles. The velocity of ascent also, 166 miles per second, is considerably greater than anything hitherto recorded. A general idea of its appearance when the filaments attained their greatest elevation may be obtained from Figure 2.

As the filaments rose they gradually faded away like a dissolving cloud, and in twenty minutes from my return, or at 1.15 P. M. only a few filmy wisps, with some brighter streamers low down near the chromosphere, remained to mark the place.

But in the meanwhile the little "thunder head," before alluded to, had grown and developed wonderfully, into a mass of

rolling and ever changing flame, to speak according to appearances. First, it was crowded down, as it were, along the solar surface; later, it rose almost pyramidally 50,000 miles in height; then its summit was drawn out into long filaments and threads which were most curiously rolled backwards and downwards, like the volutes of an Ionic capital; and finally it faded away, and by 2.30 had vanished like the other. Figures 3 and 4 show it in its full development; the former having been sketched at 1.40, and the latter at 1.55.

The whole phenomenon suggested most forcibly the idea of an explosion under the great prominence, acting mainly upwards, but also in all directions outwards, and then after an interval followed by corresponding in-rush: and it seems far from impossible that the mysterious coronal streamers, if they turn out to be truly solar, as now seems likely, may find their origin and explanation in such events.

The same afternoon a portion of the chromosphere on the opposite (western) limb of the sun was for several hours in a state of unusual brilliance and excitement, and showed in the spectrum more than 120 bright lines whose position was determined and catalogued—all that I had ever seen before, and some 15 or 20 besides.

Whether the fine Aurora Borealis which succeeded in the evening was really the earth's response to this magnificent outburst of the sun is perhaps uncertain, but the coincidence is at least suggestive, and may easily become something more if, as I somewhat confidently expect to learn, the Greenwich magnetic record indicates a disturbance precisely simultaneous with the solar explosion.

The paper of Prof. Young will be read with deep interest by every one, and we need offer no excuse for the space which we have devoted to it. The *Journal of Chemistry* says of it:

It is certainly an important contribution to our knowledge of solar physics, and will add to the author's reputation as being one of the most vigilant and competent observers living. No statement could afford a clearer idea of the stupendous energies and intense activities prevailing on the sun than that of Prof. Young, and the phenomenon must have a near or remote bearing, not only upon our planet, but upon the whole family of bodies which are held in place by the sun's attraction.

The change in the spectrum after the "in-rush" of luminous matter which followed the explosion, is a most interesting and important point, inasmuch as it would seem to show that new elements or forms of matter were brought to the surface by the disturbance. Prof. Young observes that during the unusual brilliance and excitement of the solar surface, on the afternoon of the 7th of September, fifteen or twenty new lines were observed in the spectrum.

Explosions of this kind are probably not unfrequent, and it is singular that no one has yet been brought directly under telescopic observation. The thirty minutes absence of Prof. Young from his instrument happened to be a most important period of time, and no one can regret the circumstance more than himself. Our interest in solar spectroscopy increases every year, and we have reason to expect that the enlargement of the boundaries of knowledge in that direction will be rapid and wonderful.

THE LABOR EXCHANGE.—During the last month 1,228 persons—viz: 682 men and 546 women—have been ordered from the Exchange, and employment has been furnished to 741 persons—viz: 440 men and 301 women.



## MECHANICAL PROGRESS.

## Phosphor-Bronze.

A number of experiments have recently been made in Europe, on an alloy of copper and tin containing phosphorous, to ascertain its hardness and tenacity in comparison with cast-steel. A recent number of the *Houghton (Lake Superior) Mining Gazette* contains quite a long article on the subject of these tests and the approval which the alloy is said to have obtained on the part of those who have used it.

They think that the general adoption of the alloy, in place of other metals, for ordnance and for certain other purposes for which cast-steel or even cast-iron is employed, would be highly advantageous to the parties using it, and also to the copper mines of Lake Superior.

The new alloy can, they say, be made as tough as wrought-iron; its hardness, on the other hand, may be regulated to equal that of steel; its electricity is great and holds out undiminished until rupture; its fluidity is such that the 20-inch gun and the clock-wheel may be cast with equal soundness, accuracy and perfection; its homogeneity is complete, its grain as fine as that of cast-steel.

According to a table showing the tenacity of various varieties of the new alloy, one specimen broke with a strain of 52,625 pounds to the square inch of section, while another showed an elastic resistance of 24,700 pounds to the inch.

They say that according to advice from Dr. Kunzel, dated April 26, 1871, the Prussian Government "has definitely and in principle adopted the phosphor-bronze for the field artillery of the entire German Empire;" but they are, we think, misinformed. The statement that cannon made of phosphor-bronze "will withstand the highest test to which the celebrated Krupp steel guns are subjected" is not, we believe, confirmed by the latest reports in the *Augsburger Zeitung*, which recently commented on the competitive trials.

We are informed, also, that in order to test the adaptability of phosphor-bronze to such parts of machinery as are subjected to violent and sudden shocks, the cog-wheels of Meers, Gilliaux & Co.'s heaviest iron rolling mill, which had hitherto been made of best cast-iron, and which broke down at least once a week, were replaced by phosphor-bronze gearing (weight about 8 cwt.), which has now been in continual use for more than ten months, and is yet in perfect condition.

If this is so, and there seems to be no good reason to doubt the truth of the *Gazette's* statement, a wide field is open for phosphor-bronze, and we sincerely hope that it will so increase the demand for copper as to render possible the profitable working of many of our good copper mines which are now lying idle.—*Engineer and Mining Journal*.

## Finishing Steel.

Of all the methods or processes of working and finishing of steel, probably there is none extensively used about which so little is known by mechanics in general as that of the "friction wheel," and this lack of knowledge has no doubt kept its use confined within the bonds of almost a single class of work. It is generally known that the smooth edge of a soft steel or iron wheel, when run at a high speed, will cut tempered steel, soft steel, iron, and other substances very rapidly, but with it goes the belief that steel so cut is practically ruined for all useful purposes. This is true only to a certain extent, and is entirely avoidable by a proper speed of the friction wheel and a skillful operator. A smooth steel wheel running with a periphery speed of two to three miles per minute, will cut steel at a rapid rate, and without heating it to such an extent as to even change the color, the cutting wheel, too, retaining its form for a great length of time without being re-turned. Not only the spiral sides of augers and auger bits are smoothed out and finished by friction wheels, but the fine screw points of the same are wholly formed by the sharp edge of a soft steel plate run at the frightful speed of 14,000 revolutions a minute. The freedom from heating or burning the work, as well as the accuracy and beauty with which it is done, is unquestionably in a great measure due to the skill of the operator; still this skill may be matched by the skill of the inventors, and the friction wheel applied to hundreds of purposes yet unthought of.

## Seasoning Timber by Steam.

All seem to agree that timber or lumber dried by steam is not so good as weather-seasoned stuff. The loss is in elasticity and strength, and consequently, also, in durability. But steam-dried wood does not absorb any more moisture than weather-dried; in either case, the absorption is from five to ten per cent. All bending should be done just as it comes from the steam-box, while the wood is yet in a hot damp state, and *never after*. Indeed, all wood intended for heading purposes should never be allowed to dry before bending. No cooper will buy dry hoop-holes, because they have lost their elasticity and toughness. It is true we have once seen dry veneers put on circular lintels, but the glue alone held them in position, and we pitied the owner of the house. Only one question remains unanswered, to wit: "Is steam-dried timber more apt to warp than air dried?" We answer, no; it is less, and this, in addition to the time gained, appears to us of such importance that we think the whole subject worthy of more consideration than we are now prepared to give it. Meanwhile, we advise not to hire steam for drying lumber before one is fully posted on the process. Green timber, in order to be dried thoroughly by steam, should be treated, first, for at least twenty-four hours, by free steam, and then from eight to twelve days by dry or superheated steam. A single steam-hath in a box will most certainly not effect a thorough drying, or make the wood even approximately, like weather-seasoned material. Quick drying of wood is an art hitherto little attended to by chemists, although it is an interesting and profitable field. Notwithstanding the general assertion that artificial processes damage lumber, we are among those who believe the day not far distant when wood will be dried artificially, without deterioration, for many mechanical purposes.—*The Hub*.

**XYLONITE.**—Xylonite is a substance of which the chief ingredient is chemically allied to gun-cotton, being formed by the nitric acid upon woody fibre. One of the chief uses to which it is applied is for making impermeable sheeting; and if all that is said about it bears the test of experience, it bids fair to take the place of india-rubber. Different samples of waterproof fabrics vary in substance from a thin transparent tissue up to a thick, strong cloth suitable for water-beds, water-cushions and other articles where strength of fabric is all important. Xylonite has several advantages over india rubber. It is not affected by a boiling temperature, and can be readily washed in soap and water and ironed like ordinary linen or cotton fabrics. It is not acted upon by oil or grease. Xylonite materials can be made of any color, are considerably cheaper than similar gutta-percha or india rubber fabrics, can be used again and again, and can be kept in store for any length of time without deterioration.—*London Lancet*.

**BLASTING TIMBER WITH DYNAMITE.**—Some extensive experiments have recently been made in the Forest of Haye, on the use of dynamite in blasting timber, which is found to be far more effective than ordinary powder. The dynamite was applied to some large stumps sawed from trees which had been uprooted in a storm and become thoroughly seasoned. A ¾-inch hole was bored down the center of the stump 9 to 15 inches deep, which was charged with a dynamite cartridge of 50 grms. The discharge would divide the tough root into quarters, and so otherwise shatter it that it could be easily broken up by the workmen. In this way profitable results were obtained from timber, which would otherwise have been abandoned.

**SURFACE BLOW FOR STEAM BOILERS.**—A new attachment to steam boilers has been invented, whereby the light scum on the surface of the water can be blown off. An inverted cup is suspended, by means of a vertical pipe, from the top of the boiler, so that its lower edge will be a few inches above the water line. A suitable cock is fitted into the pipe. To blow off the surface of the water, the pipe is opened, when the steam under the cup will escape, relieving thereby the water directly beneath from pressure, and causing the same to ascend and follow the steam through the pipe. The light surface scum will thus be entirely ejected, as it flows under the cup to fill the space formerly occupied by the escaped water, and is there also drawn up by the suction.

## SCIENTIFIC PROGRESS.

## Ice Fleas.

Dr. Franklin, while recently rambling among some of the Alpine glaciers turned over some small, isolated stones, under which he observed numerous small, black insects, much resembling the common flea, and, like that insect, jumping many times its own length at a single spring. The insects were not found under every stone; but a little observation showed the conditions under which they were found, which the doctor described as follows, in *Nature*: They generally occurred under flatish fragments of rock, presenting a surface of about a square foot, and having a thickness of from 2 to 4 inches. Stones of this size are sufficiently warmed by the sun's rays to melt the ice beneath them more rapidly than it is liquefied by the direct solar beams. A surface of rock absorbs luminous thermal rays better than does a surface of comparatively white ice, and it transmits these rays to the ice beneath it, partly by conduction and partly by radiation from its under surface. The stone thus melts its way an inch or two deep into the ice, forming for itself a kind of basin. Sometimes these cavities are water-tight, and then any space between the stone and the wells of its basin is filled with water derived from the melting ice. Under such conditions I never found any fleas beneath the stone. But occasionally the ice basin is drained, and it was under stones resting in such comparatively dry basins that the insects were found. In all cases, nearly the whole of the fleas were found upon the ice, very few being attached to the stones. They were grouped together in shoals, so that probably 40 or 50 of them frequently rested upon a single square inch of ice. On removing the stones, the insects were very lively, owing probably to their sudden transition from comparative darkness to direct sunlight.

I saw no indications of food of any kind beneath the stones, but we have not to search far for a possible source of food. The cold of the glacier benumbs and kills thousands of insects which alight upon its surface, and bees, wasps, flies, and moths are frequently seen dead upon the ice. Then there is the so-called "red snow," and other allied organisms of similar habits, which may perhaps minister to the wants of this singular insect. Is the ice flea, like its irritating cousin, a nocturnal predatory insect, and does it issue from its abode at nightfall in search of frozen bees and butterflies?

**FREEZING OF WATER UNDER PRESSURE.**—M. Boussingault, after briefly referring to the experiments of the Florentine Academicians, and of Huyghens (1667), on the force exerted by the freezing of water in closed metallic vessels, relates a series of experiments made by him last winter in order to ascertain whether water, when put into a strong vessel (a steel cylinder of great strength, and so arranged that the dilatation, or expansion of the water, when cooled below 39° F., could be prevented), would or would not remain liquid, even when exposed to a cold very considerably below its point of congelation, in consequence of the expansion due to the cooling down from below 39° F., being prevented by the strength of the vessel containing the water and stopper (steel plug), fitted thereto. The result of this investigation was found to be that water remains liquid under the conditions alluded to, even at a temperature of zero, Fahr., but freezes instantaneously as soon as the impediment, caused by the resistance of the plug which hermetically closes the steel vessel, is removed, and free play given to the expansion of liquid. It should be noted that the sides and bottom of the steel vessel alluded to were of such strength as to be practically unyielding.—*Acad. of Science*.

**PHOSPHORESCENCE AND FAT.**—M. Panceri, in a paper presented to a scientific association, at Turin, claims to have established that the phosphorescent substance in fishes, in whatever part of the body it may be situated, is also fat, and that the phenomenon is due to its slow oxidation in contact with air. The skin of fishes is permeable to gases, and the oxidation of the subcutaneous fat proceeds without difficulty. Phosphorescence shows itself, as a rule, some time after death, and continues until putrefaction sets in; accompanied by the disengagement of ammonia, phosphorescence ceases. Phosphorescence is prevented by the presence of fresh water, alcohol, or carbonic acid; oxygen, on the other hand strengthens the phenomenon.

**ABSORBENT POWERS OF CHARCOAL.**—Dr. Hermann Vohl, of Cologne, has lately published an elaborate paper in the *Archiv der Pharmacie*, upon the absorbent power of charcoal and its application for disinfectant and deodorizing purposes, replete with suggestions of great importance.

Among other deductions from his experiments, he states that the carbonic acid gas obtained by heating charcoal is not derived from the coal itself, but has been absorbed from the atmosphere, and is held with such tenacity that it can not be driven out by boiling in water, but that a temperature much below that of ignition is sufficient to expel it. This conclusion is the same as that which had been reached by another experimenter, to which we have previously made reference. Among other facts proving this statement, Dr. Vohl remarks that when charcoal has been once freed from its carbonic acid and saturated with pure oxygen, no trace of carbonic acid is appreciable, even when heated to a temperature of 680° Fahr.

**THE BAROMETER AND THE SEA LEVEL.**—Dr. Carpenter in a late communication to *Nature*, calls attention to the neglect, in the late discussions upon the ocean currents, of published observations made upon the influence of variations of barometric pressure upon the sea level. In this connection he remarks that, according to one author, a fall of one inch in the barometer is pretty uniformly accompanied by a rise in the sea level to about thirteen times this amount, or thirteen inches; and another makes the ratio to be about one to thirteen and a half inches, this being subsequently corrected by about twelve and three-fourths inches. Dr. Carpenter thinks that this relationship of barometric pressure to the height of the tides may serve to explain a number of anomalous phenomena that have perplexed observers, especially with reference to unusual rises of tides, and their retention at high level longer than customary.

**DECIDUOUS NATURE OF THE RHINOCEROS'S HORN.**—The statement that the horn of the rhinoceros is deciduous, or, at least, can be reproduced when accidentally lost, has been confirmed lately at the Zoological Gardens in London. One of the animals, a male Indian rhinoceros, had been in the habit of trying to raise a transversal bar keeping him off from the pen of the female, and this was attempted at one time with so great violence as to tear the horn entirely off. Considerable loss of blood ensued, which, however, was soon stopped and the surface healed. Soon after indications were observed of the formation of a new horn, which, at the date of the account, had already attained a height of one and a half inches. The old horn was about twelve inches high, and its base eight and a half inches in the long diameter and five and a half across.

**MR. CHARLES DION, of New York, proposes to place on apparatus on steamers and other vessels, so arranged as to sound an alarm on approaching the vicinity of an iceberg. The device is arranged on the bottom of the vessel, and is of such a nature that when the keel strikes any very cold strata of water the alarm is sounded. It is well known that icebergs refrigerate the water around them for a considerable distance. Mr. Dion's instrument will exhibit the exact temperature of the water below the vessel at all times.**

**DANGERS OF CHROMIC ACID.**—M. Gubler, remarks that chromic acid is one of the most powerful of caustics. Only the monohydrous sulphuric acid at all approaches it in strength. It acts rapidly, setting free a considerable amount of heat, so that the temperature may rise 125 or 150 degrees. If we plunge a small animal, such as a mouse, into a concentrated solution of chromic acid, it is instantly reduced to a cinder; and the ebullition is so great that unless care be taken, the mouse and a part of the solution are forcibly ejected.

**GUN POWDER.**—When gun powder is ignited and the resulting gas cooled down to the ordinary temperature of the atmosphere, it is found to occupy only 900 times the space of the powder. But when it is ignited in ordinary projectiles, so that the gas generated is at a high, red heat, the gases will occupy 2,500 times the space of the solid powder. Thus we see whence is derived the enormous force of powder, when ignited in a place of close confinement, where the gases may be elevated to their practical temperature.



## CORRESPONDENCE.

### Actions of Oxychloride of Copper on Argentite.

EDS. PRESS:—In relation to your articles on the chemistry of the Washoe pan process, I wish to state that I think Bowring is correct in saying that oxychloride of copper reduces argentite to metallic silver, as I have made the experiment and found it so. It is proper to mention, that in my experiment, metallic copper was present, but the silver was not precipitated on the copper, but formed a coating on the argentite. By addition of mercury and occasional warming, reduction was pretty complete in 12 hours.

At the same time I think the author named is wrong in denying the formation of silver chloride in the patio; but almost all the writers on that subject seem to speak as though sulphide of silver was the only mineral to be considered, whereas, many other compounds will yield to the action of copper chlorides.

Partzite, for instance, yields silver chlorides, and Kroenke is working an antimonial (red) ore with dichloride of copper, which converts the silver to chloride. C. H. A.

### On the Loss of Quicksilver.

EDITORS PRESS:—The letter of your correspondent, F. M. S., in your issue of Oct. 14th, explains the difficulty which seems to exist, in getting up a friendly discussion of any matter pertaining to metallurgy. Our mining and milling "experts" hoard their "titbits of experience" in the fond delusion that they are the only possessors of some great secret, when the fact is, that, nine times out of ten, the thing is known to hundreds, and practiced by those who think it worth while.

When I was at a metallurgical establishment in San Francisco, a man walked in and asked if we wanted to employ "a scientific man." As he was dressed like, and seemed to be, a laborer, I made some enquiry as to the basis of his pretensions, and found that his scientific attainments consisted in a discovery that, in certain conditions of the quicksilver in pan working, the addition of a little of the "red powder" resulting from boiling solution of blue vitriol with nails (cement copper) would assist the settling. That I think, is a fair sample of a majority of the "titbits of experience," the owners of which forget that hundreds of others have also their titbits, and that a generous system of exchange would benefit all, since he who relinquished the monopoly of one, would receive the benefit of several others in return; moreover, the general advancement of metallurgical skill must redound to the benefit of all concerned.

The question which led to all this so far profitless talk, emanated from myself, and I may therefore be permitted to say, that its answer does not necessarily involve the betrayal of any trade secret.

My object in raising a discussion on the subject in question was, to elucidate the causes of the loss, as a first step towards the consideration of the remedies.

It may be presumed that, in each mill, running steadily on a certain kind (not quality) of ore, the mechanical loss will be nearly in a constant ratio to the quantity of quicksilver in use, which quantity will vary with the quality, by which I mean richness of the ore. The question then is, leaving out of consideration the percentage of mechanical loss, which will differ in different mills, how much more is lost in working a ton of ore containing \$500 than in working a ton of the same kind of ore containing \$50?

This is the first of three questions to which it is desirable to have answers. What bearing has the richness of a given kind of ore on the loss of quicksilver sustained in working it by any given process.

The second question is, what is the relative effect of different kinds of ore, of similar richness, on the loss in working by any given process. The third question is, what is the loss in working similar kinds of ore of similar richness, by different processes.

When these questions are satisfactorily

answered, which can only be done by comparing notes or by an elaborate system of experiments, the first step will have been taken toward a very important saving in metallurgy.

In the foregoing, I refer only to the chemical loss of mercury, or that action of the minerals in the ore, or of the chemical treatment used, by which a portion of the metal is converted into something else, some compound, as calomel, or oxide.

As I opened this ball, it is perhaps proper that I should lead off in the dance, and as I am not at present ready to say much in regard to the chemical loss, I will give my views on that which, though doubtless effected by the chemical conditions, is in itself essentially mechanical. Perhaps it would be better made the subject of another communication. C. H. A.

### BATTLE MOUNTAIN, NEV.

BY OUR OWN TRAVELER.

EDS. PRESS:—A short distance from Battle Mountain city, which is seven miles from the railroad, is

Galena City,

a small burg with two hotels, a few business houses, etc. I visited a few of the most prominent mines in the vicinity of this place, the first of which was

The White,

owned by Knowles & Earl, of your city. We went down the shaft 146 feet, and then into one of the four drifts. There are 18 men employed. In the drift north of the shaft, 110 feet, the lode is almost perpendicular—dipping slightly to the east, and averages one foot in width. Upwards of 3,000 tons of ore are said to be in sight, the first-class of which yields 30 per cent. lead and \$275 per ton in silver; second class about \$35. The ore is sold to smelters in San Francisco, about 40 tons of first class being shipped monthly. South of this lode, 1,800 feet, is

The Shiloh Mine,

an extension of the same, and belonging to the same owners. The ore yields about 50 per cent. of lead, and \$100 per ton in silver. Three levels have been run from a shaft 104 feet deep, showing heavy bodies of ore. The hoisting works and pumping apparatus on this mine are very complete, and the whole property a very desirable one.

The Avalanches

has a shaft 70 feet deep on a lode 2½ feet thick. It is owned by Dunn & Bro. The ore averages 60 per cent in lead, and \$119 per ton in silver.

The Avalanche North

has a shaft 35 feet on a lead the ore of which goes \$118 per ton in silver and yields 40 per cent. of lead.

Nevada Butte Co.

The mill belonging to this company was built but a short time since, and has 15 stamps weighing 750 pounds each. The building is 70x90 feet. The engine was built at the well-known Vulcan Iron Works in San Francisco; there are two large boilers. The coal used costs \$18.50 per ton, delivered at the mill. There are six pans and an equal number of settlers. Wm. Garrard is superintendent of the mill and mine.

The Trinity

belongs to this company, and is considered one of the best mines in this section. The shaft is 140 feet deep, and a drift run 100 feet south at a depth of 50 feet. The base metal ore yields largely, and many tons have been shipped to your city for reduction. Another very promising mine belonging to this company is

The Butte,

and they are contemplating the erection of a large furnace for reducing the ore. The whole property is a valuable one.

The Battle Mountain Co.

have bought some copper mines and have 24 men employed in working them. The main shaft is down 113 feet, a drift run about the same distance, and several shafts sunk from it, one 36 feet deep. Ore has been taken out from chambers 4x30. The mine bids fair to be a very valuable one to the owners—an English company. The ore is shipped to England via San Francisco. The price for shipping is as follows: from mine to railroad \$7.50; from there to San Francisco, \$11; to Liverpool, from \$6 to \$7 per ton. The ore averages about 24

per cent. of copper. Mr. Jos. Richards is general manager.

Trenton Mine.

This ledge is located on the western slope of Battle Mountain. The main shaft is down 293 feet, one tunnel has been run in 300, and another 250 feet. The lode is about 12 inches wide. Wood and water are abundant. The ore averages \$90 per ton. At Battle Mountain station I notice that some works have been erected for the reduction of antimony, within the past year. W. H. M.

### EFFECTS OF CLIMATE ON FRUITS.

EDS. PRESS:—It is well known to horticulturists that trees and plants from a wet, or even a moist air and climate, do not prosper so well in a country and soil that is too dry and arid in its character, and that vegetation which flourishes well in countries of sandy or dry soils will, in a measure, if not equally, deteriorate in a too humid atmosphere and locality. As superabundance of moisture will cause some of our most valued cultivated fruit trees to be unduly watery, or possess soft wood or stems, and so become in a manner diseased, and of a dropsical habit, and so run inordinately into wood instead of fruit, their produce will be apt to fall before it is matured, and that which is retained will be, in its juice, watery and void of good flavor. But on the contrary condition of the case—that is, where there is not enough rain, or moisture from irrigation, if the size of fruits is not much arrested their fine qualities and rich flavor cannot possibly be obtained or brought out.

Our own California, for instance—especially in the last two seasons, which have lacked sufficiently seasonable rainfalls, (having last year rather unusual heat), and when irrigation had to be resorted to in an uncommon degree, it has been seen that, although remarkable size and beauty has been obtained in the more succulent fruits, yet the desired high flavor has, in the first of the two years at any rate, been found to be more than commonly lost; whereas under circumstances more favorable to their development these same fruits would have possessed far better qualities.

Luckily for us, in our almost exceptionally splendid climate, heavy rains rarely occur at the time of the blossoming, to arrest the healthy results of the pollen on the stigmas. If anything, we have generally rather too much light and sunshine and dry heat, though these are essential to stimulate our most valuable plants. We must not go, however, into the contrary extreme and plant our fruit-bearing trees, especially the grape, in low, wet and excessively rich grounds, or upon that kind of land which has an underlay of hardpan soil, unless indeed it can be subsoiled or trenched. Wet situations can, of course, be underdrained, but in that case the extra great expense must be taken into account.

We certainly approach fortunately, pretty closely in California to that mean temperature for the year, which, although not exactly settled by botanists, is so desirable, not varying many degrees. We certainly cannot be said generally in the State to suffer much from frost, but the heat and dryness is mostly much in excess. This is what we have to judiciously regulate in a considerable degree by artificial means—at least the dryness—by systematic, or particular local irrigation. Our hardy fruit trees can scarcely be said to have to hibernate during winter. We have no disastrous effects from frost which they have in so many parts of the United States and other countries.

The time is approaching when in many parts of this region the application of special manures to fruit trees and plants, will be necessary, as Liebig has wisely suggested, that the ashes of the plant will show exactly what it needs, and an analysis of soils will inform us whether they contain all the necessary elements, and in the right proportion.

Light is a great stimulant in the growth and health of vegetation. Of this we have rather a superabundance. In our powerful sun, preserving lower branches need hardly be recommended, for, it is evident it is well practiced, although it is not so needful for the stems of the trees here, as in climates where there is much frost, and also, in the summer, a hot sun.

E. J. HOOPER.

San Francisco, Oct. 30th, 1871.

### Mines in Inyo County.

EDS. PRESS:—I notice in your valuable paper letters from different mining districts throughout the country, and as they are always read with interest by me, I presume a few notes from this section might also be of interest to persons in other parts. The most important mine in my estimation, and among the first located in Owen's River valley, is

The Eclipse.

The predecessors of the present company had a 10-stamp mill; but owing to the Indian difficulties at the time, little ore was crushed, and it burned down without effecting much. The present company is an English one, having its principal office in London. The same board of directors managing this company, also manage several paying mines in Brazil, one of them, the Don Pedro, having paid to its shareholders, in dividends, the sum of £200,000. With such men as these at the head of the Eclipse, it will most certainly be a profitable investment. The new 30-stamp mill is driven by four of Linn's turbines, the water being conveyed from Owen's River by a ditch 5 miles long, 3 feet deep, and 9 feet wide, at bottom. The water being low this year, only 20 stamps can be used. The ore is conveyed to the mill by a railway 2¼ miles in length. The average width of the ledge is seven feet. Mr. H. Tregellas, the superintendent, is putting up some smelting furnaces for the galena ores, which assay from \$150 up to \$4,500 per ton.

The Kearsage,

I am sorry to say, has been compelled to suspend operations on account of a scarcity of water. Their usual supply has been received from the melting snows of the Sierra Nevada mountains.

The Union

is laying idle waiting developments on the Eclipse and the result of its first run in the new mill. The Owen's River Smelting Works will start up very shortly, the superintendent having just returned.

F. M.

Independence, Inyo Co., Oct. 25, 1871.

### Summer in Our Inland Valleys.

Mr. Wright, who furnished the valuable paper on the rains and climate of San Joaquin Valley which we published last week, also forwards us the following interesting notes with regard to the climate of our inland valleys generally:—When a stranger to the climate of Sacramento and San Joaquin valleys observes that as high a temperature as 110° in the shade is sometimes reached in our warmest weather, he is likely to draw the wrong inference that our summer heat must be very oppressive. But strange to say, it is rarely sultry here, and our hottest weather is never prostrating.

Sun strokes are of very rare occurrence. One may be exposed day after day in July and August without any protection from the sun's rays, and will not suffer, so long as he has all the cool water he can drink, and of that we have the greatest abundance. A delightful sea-breeze from the north-west prevails, with remarkable regularity in summer, from ten or eleven o'clock till late in the evening, and is constantly fanning us and furnishing the purest of air. Summer nights are cool with very rare exceptions, and always without dew. Usually one needs a blanket or two to sleep comfortably.

While our summer heat is prevented by these means from being prostrating, fall, and most of winter and spring, are as pleasant as the finest spring and autumn weather in the Eastern and Southern States. We speak here only with reference to the climate of our great inland valleys. Our coast and mountain climates are more uniformly cool and moist, while in the foothills the summer air is hotter and more oppressive, because the sun's rays fall more perpendicularly on a large part of the surface there, and its atmosphere is not so regularly ventilated by refreshing breezes as our open plains and the loftier portions of our mountain ranges. As a result of the difference, windmills for watering and irrigating purposes, are a specialty in our plains, but cannot be used to advantage in the foothills.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**MONITOR MINER.**—Oct. 28th: A ditch to carry water for use in the Schenectady mill has been surveyed this week.

**HAULING ORE.**—Silver Mt. *Chronicle*, Oct. 28th: This week, ore is being hauled from the Exchequer mine to the Co.'s mill.

### BUTTE COUNTY.

**RIVER MINING.**—Butte *Record*, Nov. 4th: The river mining the present season does not appear to have been so successful as usual.

**RICH ROCK.**—We were visited on Monday by S. N. Elton, the discoverer of the silver ledge in the Gravel Range Dist., near the dividing line of Butte and Plumas counties. The ledge shows a width on the surface of some 14 inches, and has widened to about 20 at a depth of 8 ft., the rock increasing in richness. The ledge crops out on the surface for a distance of 2,000 or 3,000 ft. Some of the rock taken out at a depth of 8 ft. exhibits remarkable richness.

### CALAVERAS COUNTY.

**LARGE YIELD.**—Calaveras *Chronicle*, Nov. 4th: Developments recently made at the Gwin mine, Lower Rich Gulch, are unparalleled in the history of quartz operations in this State. A strata of rock has been discovered in the main shaft at the depth of 400 ft., that for richness eclipses anything of which we have ever heard of. The rock closely resembles the slate of which the walls of the lead are composed. The strata mentioned lies next to the foot wall and is about a foot in width and thickness. In color and formation it so nearly resembles slate that it requires a close examination to distinguish the two from each other. The inclination of the "streak" differs slightly from that of the shaft. Commencing at a point near the surface it crosses the latter, diagonally, leaving the shaft at the 400-ft. level. By "drifting" a short distance on the lead, however, from the 500-ft. level, the strata will undoubtedly be struck again. By the merest accident it was discovered that this singular deposit, instead of being slate, was simply a mass of sulphurets, carrying free gold in abundance; 2½ oz. yielded 166 grains of gold! or, at the rate of \$53,140 per ton! The rock assayed was not selected. It was broken from a chunk at least a foot square and is considered a fair test of the richness of the whole strata.

**MOSQUITO GULCH.**—From the San Bruno mine, 27 tons of rock, crushed, yielded \$2,000—an average of \$74 per ton.

**CAMPO SECO.**—An assay of sulphurets from the Sailor claim, at a depth of 100 ft., showed \$48 per ton. An assay made last week, of some rock taken out at a depth of 20 ft., on a lode that runs through the south end of the town, from 3 different places, showed \$75 per ton. Spencer G. M. Co. are now at a depth of 60 ft., the rock constantly improving as they go down.

**COPPER ORE.**—Stockton *Republican*, Nov. 3d: Work has been resumed on the Union Copper Mine at Copperopolis, and ore is coming down from the mine. It is shipped in hags of 100 lbs each; 350 are now lying on the wharf.

### EL DORADO COUNTY.

**PLACERVILLE** *Republican*, Nov. 2d: Shepard & Witten have been tunneling to reach a gravel lead, and last week struck through into gravel cement that will pay fairly.

The mining interest about El Dorado is flattering. There is a good deal of prospecting, with fair results, and many of the old mines are being put in shape to work to advantage as soon as a supply of water can be had. The Pocahontas has started up again, employing 20 men; the mill is undergoing repairs and soon will start up.

### FRESNO COUNTY.

**SPECIMENS.**—Millerton *Expositor* Nov. 1st: We have been shown several very fine specimens of quartz obtained in the vicinity of Coarse Gold Gulch, and from other portions of the county. Some were float quartz, but others were from small but well defined gold-bearing ledges.

### INYO COUNTY.

**THE OUTLOOK.**—Inyo *Independent*, Oct. 28th: In Cerro Gordo, all the principal silver mines—the Belmont, Wittekind, San Lucas, Crowning Glory, Friendship, Buena Suerte and others—are working full forces, extracting large quantities of good ore. Plenty of lead is coming out of the galena mines situated directly in that

camp, the Union yielding the greatest quantities at present. The O. L. S. L. Co. have again put a heavy force on the front, which is being worked to a very great advantage through their deep, 900 ft. tunnel, while Belshaw and Beaudry employ a large number of miners. The Swansea works resumed active operations last week. The reduction works of the Eclipse Co. are now beginning to operate; 20 stamps of the battery of their new water-power mill are in motion.

**FLUMING ENTERPRISE.**—Mr. Ferguson, of Lone Pine, is about constructing a long flume from the mouth of the cañon on Murphy's creek, 8 miles north of this place, to Owen's River.

### LOS ANGELES COUNTY.

**SAN GABRIEL.**—Los Angeles *News*, Oct. 28th: A ditch has been completed from the head waters of the San Gabriel to the mines, a distance of 5 to 6 miles. This has a carrying capacity of about 500 inches.

### NEVADA COUNTY.

**MINING LOCATION.**—National *Gazette*, Nov. 1st: C. Johnson and others have four located claims on Orleans Flat.

**MARBLE QUARRY.**—Work is being vigorously prosecuted on the marble quarry discovered some time since, on Bear river, near Taylor's bridge on the Colfax road.

**SUCKER FLAT.**—The Nevada Ditch and Reservoir Co. have let a contract to raise their reservoir 6 feet. Work will be commenced this week.

**NEW YORK HILL MINE.**—Grass Valley *Union*, Nov. 1st: Work at this mine is being prosecuted vigorously with great success. The last crushing was one of 40 tons of ore, and the yield was \$1,080 or \$27 to the ton.

**HUESTON HILL MINE.**—Yesterday a clean up was made of 45 loads of rock crushed. The rock yielded \$2,790 or \$72 to the load.

Isaac Morris and others have located 51 claims in Relief Hill dist., commencing near where the North Bloomfield Gravel M. Co.'s ditch crosses Mission cañon.

**OLYMPIA MINE.**—This mine is located on the mountain beyond the Banner. They have been sinking on the ledge but a short time and getting out some excellent rock. It will pay at least \$50 to the ton.

**WATER TURNED IN.**—Water has been turned into the big flume at the head of the South Yuba Canal Co.'s ditch, in Bear Valley.

### PLUMAS COUNTY.

**A BIG CHUNK.**—Quincy *National*, Oct. 28th: It has lately come to light that some Chinamen working on the Middle Fork of Feather river, below Nelson Point, about 4 months since found a nugget weighing 14 lbs.

**MOHAWK QUARTZ.**—We are in possession of a specimen of the quartz recently discovered near Mohawk. The rock is of a reddish brown color, and gold, evenly distributed through it, is plainly visible. As the work progresses the rock improves in character, quantity and richness, and the vein is well defined, averaging from 2 to 3 ft. in width. Mr. Betterton has put up an arrastra, and will have it running in a short time.

**SALE.**—It is reported that all the ditch property controlling the waters of the lakes at the head of the Plumas ditch, on Spanish Peak, have been purchased during the past week.

**NEW DITCHES.**—The Ku Klux Co. have been at work for the past summer, digging ditches to convey the water from the head of Mill creek and the east branch of Rock Creek, to the Hungarian Hill country, where they have ground which is supposed to be valuable.

### SAN BERNARDINO COUNTY.

**RICH ORE.**—Los Angeles *News*, Oct. 28th: Some very rich ore from the Grain Pass mines, San Bernardino, is on its way to be forwarded to S. F.

### SANTA CLARA COUNTY.

**QUICKSILVER.**—San José *Mercury*, Nov. 2d: Work has commenced on the new quicksilver mine recently discovered on Maj. Vernon's ranch, a few miles south of Alamaden. The lode prospects well.

### YUBA COUNTY.

**MINES.**—Marysville *Appeal*, Nov. 3d: The miners in most of the hydraulic mines in this vicinity have suspended active operations while they put up their cuts and flumes, preparatory for the winter's work. But few of the heavy mines are now pining, most of them being engaged in repairing.

## Nevada.

### EUREKA DISTRICT.

**NORFOLK AND SUFFOLK.**—Eureka *Sentinel*, Oct. 31st: These mines consisting of 1,200 ft. each are within a few hundred yards of the road leading from Eureka to

Secret cañon. This property is being worked with more than ordinary encouraging results. Ores of fair grade in gold and silver are being extracted, besides galenas of such a desirable smelting quality that another furnace is contemplated.

**DON QUIXOTE.**—This mine is in the neighborhood of the Gen. Lee. A shaft is down 40 ft., 7 ft. in carbonate ore averaging \$102 per ton in silver, \$72 gold and about 50 per cent. lead. The Ida Elmore, another promising mine in the same vicinity, with the Don Quixote, is about changing hands at large figures.

**STRIKE.**—As the result of a few days work in the Tip Top mine a rich body of ore was struck in the old shaft. An assay showed \$30 in silver, and \$150 in gold.

**THE NEWPORT** is about one-fourth of a mile due south of the Bullwhacker and Otho mines; 3 locations have been made on the ground, all bearing the same name and running from No. 1 to No. 3. Men are engaged in all the various workings, but in the shaft of the original location is where the recent rich discovery was made. The main cut is down 12 or 15 ft. and for a greater part of the distance is in a solid mass of excellent high grade ore. There are 100 sacks of first-class ore on the dump. The ledge at the point of the late strike is from 5 to 7 ft. wide, and of indefinite depth.

### ELY DISTRICT.

**BULLION.**—Pioche *Record*, Oct. 29th: W. F. & Co. shipped since Oct. 22d, 10 bars of bullion valued at \$55,011.16, for the Raymond & Ely Co.

**OUR MINES.**—Ingomar is down 150 ft. will soon commence drifting; indication extremely good.... Little Giant is looking well throughout; down 50 ft. and still sinking.... Panaca shaft of Raymond & Ely is down 200 ft. perpendicular; still taking out immense quantities of rich ore.... Caroline struck good ore recently; down 45 ft. and still sinking; will soon commence sinking an incline from shaft; ... Lafayette is down 150 ft. and looking well throughout.... Newton Booth has just let a new contract for sinking 50 ft. more; the indications are improving as greater depth is attained.... No. 3 shaft of Mesdow Valley Co. is down nearly 400 ft.; raising and shipping large quantities of good ore.... Mary mine has a shaft down 45 ft. and still sinking; taking out good rock and improving as sinking goes ahead.... Khedive has a shaft down 50 ft. and will soon let a contract for running a cross cut; fine ledge with well defined walls all the way down.

### HUMBOLDT.

**BULLION.**—Unionville *Silver State*, Nov. 1st: Amount shipped from the Arizona mine, since our last issue, was \$6,476.

**THE RESULT.**—Clark Bros. recently shipped to the Auburn Mills, Reno, about 20 tons of ore from Central Dist., from which they realized \$90 per ton.

**ARIZONA CONS.**—The mine is showing exceedingly well.

**MILL STARTED.**—The new mill recently built in Dun Glen, was put in operation a day or two since.

**ECLIPSE.**—Work has been resumed with promising prospects. The ledge is 4 ft. in thickness, and producing ore of a very high grade.

### REESE RIVER.

**BULLION SHIPMENT.**—Austin *Reveille*, Nov. 1st: W. F. & Co. have shipped during the month of Oct., 155 bars of bullion, —14,220 lbs., valued at \$140,318.69, of which 122 bars valued at \$124,454 are from the Manhattan mill, and the balance of 33 bars, valued at \$15,864.58 from Belmont, from the Transylvania, Arizona, and El Dorado South mines.

Paxton & Co. have shipped during the same month, to the Bank of Cal. S. F., 38 bars of bullion, from Belmont, —2,841 lbs. and valued at \$18,097.43. Of that amount \$8,440.97 is from the Transylvania and Arizona mines, and \$9,656.56 from the El Dorado South.

**OUTSIDE ORE.**—Last week the Manhattan Co. worked 13½ tons of ore from Hall & Co.'s mine, Summit cañon, which produced \$207 per ton.

**FISH CREEK DIST.**—This Dist. is about 16 miles southerly from Eureka, and 4 miles south east of Spring Valley. Quite a number of promising claims have been opened, and indications for the future prosperity of the Dist. are favorable. Considerable quantities of high grade smelting ore have been already extracted.

**NICH PLUM.**—The Richmond boys have received the balance of their money, \$125,000, due them from the sale of their property.

### WASHOE.

**THE NEW EUREKA MILL.**—Excellent progress is being made in the work of build-

ing this huge new mill of the Union mill Co., on Carson river.

**MERRIMAC MILL.**—They have been enabled to start settlers on tailings and expect in a few days to be able to run a few stamps.

**BRUNSWICK MILL.**—The new mortars of the Brunswick mill, Carson river, are being put in and the batteries will soon be completed. The pans are already up, and the settlers are being set.

All the mills along Six and Seven-mile Cañons are in full blast.

**ROCK POINT MILL.**—The Rock Point mill, Dayton, will start up next week on Belcher ore.

**OPHIR MINE.**—The Ophir shaft is down 1,100 ft. and a set of timbers for the 1,100-ft. station is being put in. The rock continues to work well and no water is coming in to discommodate the workmen.

**CHOLLAR-POTOSI MINE.**—This mine is now yielding 150 tons of ore per day, assaying upon the average \$45 per ton, making the weekly yield \$40,500. The Co. shipped \$31,000 in bars day before yesterday. Those portions of the mine in which prospecting is being done are looking exceedingly well, and stopes in the old works are yielding the usual quantity and quality of ore.

The Savage mine yielded 500 tons of ore last week, assaying \$37 per ton, or about \$18,000 in bullion.

The Hale & Norcross Co. are still engaged in re-timbering their main shaft. They extracted about 250 tons of ore last week.

**CUNDURANGO.**—The Cundurango is attracting much attention at present. It is the north extension of the famous Hooker, and even at the very surface is rich in silver.

**SUTRO TUNNEL.**—The tunnel was yesterday in a distance of 2,500 ft.

**CROWN POINT.**—Gold Hill *News*, Oct. 31st: The two hoilers heretofore in use at the Crown Point hoisting works, which have been removed to give place to larger ones, are to be taken to the Brunswick mill, Carson river. The cross-cut at the 1,200 ft. level of the Crown Point has reached the east wall, and shows the full width of the ore body to be 67 ft. It is fully demonstrated that at this level the ore body extends 10 ft. further north than in the level 100 ft. above.

### WHITE PINE.

**BULLION.**—W. P. *News*, Nov. 1st: The Monte Cristo Mill and M. Co. shipped, yesterday, 3,186 ozs. of bullion, valued at \$4,029.34.

**EDGAR.**—Drifting continues from the 110-ft. shaft. The ore-body is 20 ft. and increasing in width. The general dip of the ore is to the east. This immense body of ore, as far as assayed, averages \$50 per ton.

**ICEBERG.**—The ore continues to look well.

**EAST SHEBOYGAN.**—The ore in the workings mentioned last week is increasing in quantity. The south drift from the original tunnel, is pushed ahead 20 ft., with ore the whole distance. Connection with the Exchange and Regent shafts is nearly complete, and when made, a force of men will commence stoping. A drift will start up next week to connect the Exchange shaft with the original tunnel, and when made there will be a 200-ft. breast of ore opened.

**MANHATTAN.**—Recently a body of ore, the extent of which we do not know was developed. Seven assays ranged from \$21 to \$182 to the ton.

## Arizona.

**PROSPECTORS.**—Prescott *Miner*, Oct. 21st: Several parties have left here lately on a prospecting tour. The last of these left on Wednesday for Copper Creek to prospect for silver ledges.

Among the late discoveries, is a lode at Turkey Creek, 2½ miles below the Bully Bueno mill; the surface indications have never been excelled by any mine in the Territory. The discovery was made in the early part of the present week and has been named the Compton lode. Native silver, chloride, black sulphuret and horn silver abound in the croppings, and some 100 pounds of the ore brought to town present all these in abundance. The thickness of the ledge varies from 12 to 15 ft. at the surface, and in the centre of this is a stratum about 2 ft. thick in which native silver and black sulphurets are plentifully interspersed.

**FLORENCE.**—The Pinal prospecting expedition claim to have discovered valuable gold mines during their visit to the interior.

**MINERAL PARK.**—The mines are turning out richer ore every day; 5 men are at work on the "Lone Star," taking out 50 tons of ore for the mill. To-morrow the



Mayflower Co. will commence taking out ore for the mill.

There has been some very rich strikes near Empire, and ore is being shipped daily. At Cerbat, Peo & Co. are shipping ore from the "Vanderbilt" and "Champion." Slaven & Co. are shipping from the "Tigress."

Colorado.

Mr. Berg, working the Union No. 4 lode, at Buckskin, Park Co., is taking out large quantities of rich silver ore; 6 men are employed. The Union No. 4 has been worked as a gold lode, and this silver vein is a new development, having been found 100 ft. below the surface—that being the depth of the shaft. A tunnel has been driven into the vein at a distance of 50 ft. from the entrance.

S. McCLELLAN and T. Holson have leased the Lexington (21 stamps) mill up Novada St. and started up work to-day.

PARK CO.—Cor. Central Register, Nov. 1st: On Mt. Brown the Moose is opened about 40 ft. in length, and in depth is about 20 ft. The vein is about 2 ft. wide, and averages, by assay, \$160 per ton. The Dwight opened about the same in length and depth as the Moose, and contains the same class of ore. Three men are employed in getting out the ore from the 2 veins. Below the Dwight, 4 veins have been discovered, and a tunnel has been commenced at right angles. The excavated limestone shows mineral all through it. About half a mile below the Dwight is the Fairview, which has been traced several hundred ft. The depth is 10 ft., which shows 2 veins, one of galena 2 ft. wide, and the other of honey-comb quartz 18 inches wide. The latter prospects large in gold. The Tar Heels, though only sunk about 6 ft., assays \$300 per ton.

On Mt. Lincoln may be mentioned the Wilson, Haynes, Lincoln, Alps, Monson, and Musk Ox. Each of them contain large quantities of ore from which large assays are obtained.

Safford, Sykes & Co. own 4. One of them, the "Musk Ox," contains ore equal to any yet found. Two assays recently made, gave \$1,326.90, and \$473.80 per ton. O. M. Jones owns 7 veins on Mt. Lincoln, 2 on Mt. Brown, and 3 near the head of Buckskin gulch, which give assays up to \$700 per ton.

Summit Co.—W. King is developing his lode in Pollock Dist., and is getting out some very fine ore.

During the past 6 weeks 8 additional lodes have been discovered in the vicinity of Ten Mile, all free gold, and said to prospect large. The owners propose to construct arrastras next spring.

Two months ago Carney, Crawford, and others, discovered a silver lode near the head waters of the Arkansas and Ten Mile. They claim to have a well-defined crevice 2 ft. wide.

Greenleaf & Co. have completed their ditch from the Blue to Klak gulch. It is 200 rods long, and capable of furnishing from 1,000 to 2,000 inches of water during the highest stage of water in the Blue.

W. McFadden has sold his interest in Illinois gulch for \$5,000 dollars and his interest in a new discovery of placer ground for \$800.

C. Bledsoe discovered, last fall, in the vicinity of Ten Mile, a free gold-bearing lode, which he developed recently, and found a well defined crevice 3 ft. between walls. The ore is about three-fourths decomposed, and 25 pans of it averaged \$1.53 to the pan.

St. Lawrence Co. will complete their Arey furnace as near as possible this winter, and have let 2 more contracts on their 2 lodes, the Silver Wing and Napoleon. The ore from both lodes increases in value as the tunnels are driven. About 25 men will be at work there this winter.

The Boston Co., at St. Johns, will work a number of men on their lode and on their new works. A number of other lodes in that section are turning out some very rich ore.

Montana.

KEATINGVILLE.—Cor. Deer Lodge News North West, Oct. 28th: In the Keating mine two levels have been run one, 100 feet and another at 172 feet in depth, which have been worked north of discovery shaft 370 feet and south of it 600 feet, taking out a body of ore which has averaged \$20 per ton from a crevice varying in width from 20 inches to 2 1/2 feet. The mill has a capacity of 24 tons per day, and has paid \$9,000 to \$10,000 per month from the date of starting up. The Ohio mine has a 70 foot shaft on No. 1 south has been worked to that depth, uncovering a 3 foot crevice of No. 1 ore. They are at present driving in a 240 ft. level.

Utah.

BULLION.—S. L. Tribune, Oct. 30th: During the past week Woods & Cutting having shipped to New York, 3,080 bars of base bullion weighing 335,398 pounds.

Walker Bros. shipped to New York 5 bricks of fine bullion from East Cañon worth in the aggregate \$7,000.

W. F. & Co. sent to New York 8 bars of Pioche bullion, from the Meadow Valley works worth \$10,822.50.

On the 26th they received from Walker Bros. 5 bars, 384 lbs., valued at \$6,893.22, and from Pioche, 8 bars, 933 lbs., valued at \$10,822.50 from Raymond & Ely's works. On the 2d (same paper Nov. 3d) they received from same place from Meadow Valley Works 18 bars worth \$21,239.36 to be forwarded to New York to day. On the 1st they forwarded to New York 19 bars Pioche bullion worth \$55,011.16.

THE MONARCH.—East Cañon is better than ever before, with a 5 foot vein of solid chlorite.

MOUNT NEBO M. DIST.—The mine is looking well. The Olive Branch shows over 4 feet solid carbonate ore assaying on an average over \$30 per ton. The Sultana is looking splendid, and every lode that has been worked on improves with the depth.

LITTLE COTTONWOOD.—The Vallejo is yielding from 10 to 15 tons of ore daily, which will work at least \$100 to the ton.

Work on the tunnel of the Little Cottonwood Silver M. Co. has been pushed into the mountain more than 200 feet, having passed through two small veins of ore, which were not deemed sufficient to warrant drifting or sinking upon, the company preferring to push ahead with all their forces for a larger body of ore, which they feel confident is not very far distant in the hill.

EAST CANON.—On the west front of Lion Hill the original Lion claims 1,600 ft., much of which, along near the North Webster shaft, is in the deep rock ent. The Blue Wing shaft, near it, is down 75 ft. and shows the same kind of ore. The Mormon Bello and Blue Wing No. 2 all show the same connection of ore. The deepest work in this lot is now 100 ft. from the surface.

Below the Zilla, on that spur of Lion Hill nearest the cañon, is the Tenderfoot, an important location. The incline is in 30 ft. from the surface rock, showing a good body of ore at the termination, and some all the way from the surface. It is claimed the ore is worth \$1,000 per ton. Another tunnel has been started below, and work upon both is being prosecuted vigorously. The Silver Chief, still lower down shows a large body of average or low grade ore.

At Ophir, the Ida Elmore men have stripped their vein for 12 ft. further up the hill, showing it continuous between the formations. In this last portion, black sulphurets of silver predominate. The same men have opened, on the other side of the gulch, a vein which can be traced 1,000 ft. by occasional croppings.

Among the most noted mines on Silver Hill is the Occidental, about half a mile west of the Silveropolis. It cuts the formation nearly exactly at right angles and can be traced for 2,000 ft. The first tunnel defines the footwall for 60 ft. Another shaft, 100 ft. from the first, shows the same wall well defined. The vein is from 2 ft. thick to 10, but in the latter width, of variable material. Assays from the "top rock" ran from \$12 to \$28; at the depth of 100 ft. in the main shaft from \$100 to \$2,000. A picked piece of sulphurets yielded \$4,740.55.

In the Tiger, Lion Hill, the main chamber is on a level with the track tunnel from which, at a distance of 80 ft. from the entrance, a large stope bears off to the right and upward to the next chamber. There a cross cut straight east and west shows ore for 40 ft.

The vein, which has shown very wide in the Tiger, sinks to 2 ft. on entering the Rockwell, then widens to 6 ft.; but the ore is much richer than in the former. The Mountain Tiger, Rockwell and Bella may be considered as one. The shaft is but 25 ft. from the Bella, and shows a rapid improvement in the vein. Where furthest into the hill the vein is at least 12 ft., the shortest line from foot to hanging wall; but owing to the incline the 3 chambers amount to 18 or 20 ft. of perpendicular.

The Lone Star is looking very well. It is one of the latest discoveries. The Antelope looks good.

FURNACE AT WORK.—One of the furnaces of the Sultana works, in American Fork commenced operations last Tuesday, and is making a good run.

Mining Stock Market.

THURSDAY EVE., Nov. 9th, 1871.

Stocks have looked up again this week, and prices are fairer since our last review.

The sales at the San Francisco Stock Board, for the week ending last Friday aggregated \$2,370,300. From the Raymond & Ely mine \$56,050 were received, making a total of \$215,225 for 25 days run of the fiscal month. On October account, \$173,000 have been received from the Meadow Valley mine. The October receipts of the Chollar Potosi, were \$73,143. The sum of \$21,000 has been received on October account from the Caledonia mine. The suspension of J. B. E. Cavalier, President of the Stock Board was announced this week. He was a sufferer by the Sime Bank failure. October receipts from the Kentucky \$20,071. The Territorial Enterprise of the 7th inst. contains a statement of the yield of the principal mines in Storey county, Nev., for the quarter ending Sept. 30th, as returned to the Assessor. The total amount of ore reduced for the quarter by the 12 mines reported, is \$3,680 tons; gross yield \$1,987,674. The actual cost of extracting was \$748,908; actual cost of reduction \$16,577; leaving a profit of \$422,000.

The following is a statement of the gross bullion yield of each mine and average per ton:

Company.	Gross Yield.	Per ton.
Balcher.....	\$212,039	\$78 85
Caledonia.....	55,690	11 52
Chollar Potosi.....	287,176	29 26
Chollar Potosi, M. Lynch.....	66,911	18 06
Crown Point.....	526,565	30 54
Empire.....	27,758	12 51
Hale & Norcross.....	114,337	15 21
Kentucky.....	69,691	17 43
Savage.....	237,662	20 62
Segregated Belcher.....	11,068	27 02
Sierra Nevada.....	52,748	10 54
Succor.....	64,983	14 12
Yellow Jacket.....	250,941	27 46

Comparative Prices, Extremes, Advance and Decline.

	Nov. 2d.	Highest.	Lowest.	Nov. 9.	Adv.	Dec.
Alpha.....	27 1/2	27 1/2	10	10	—	—
Amador.....	350	400	32 1/2	400	50	—
Belcher.....	3 1/2	3 1/2	3 1/2	3 1/2	—	—
Buckeye.....	30	30	11 1/2	31 1/2	1 1/2	—
Chollar Potosi.....	13 1/2	13 1/2	11 1/2	11 1/2	—	—
Crown Point.....	291	310	290	300	9	—
Danby.....	—	24	6 1/2	7 1/2	—	—
Empire Hill.....	—	—	—	—	—	—
Eureka Cons.....	24	24	20 1/2	23 1/2	—	3 1/2
Eureka.....	19	20	19	—	—	—
Golden Circle.....	11	9	9	—	—	—
Gould & Curry.....	113	114	95	102	—	11
Hale & Norcross.....	103	100	100	—	—	3
Ida Elmore.....	3	35	35	27 1/2	—	—
Imperial.....	130	169	127 1/2	160	30	—
Kentucky.....	80	85	75	—	—	—
Mammoth.....	32 1/2	35	32 1/2	37	4 1/2	—
Meadow Valley.....	—	—	—	—	—	—
Occidental.....	22	22	19	—	—	—
Ophir.....	21 1/2	22	19	—	—	—
Orig. Hid. Treas.....	5 1/2	5 1/2	5 1/2	5 1/2	—	—
Pyreman.....	10	10 1/2	10 1/2	10 1/2	—	—
Raymond & Ely.....	120	120	80	90	—	10
Savage.....	42 1/2	45 1/2	42	45 1/2	2 1/2	—
Sierra Nevada.....	—	—	—	—	—	—
Silver Wave.....	—	—	—	—	—	—
Seg. Belcher.....	19	23 1/2	19	28	9	—
St. Patrick.....	—	—	—	—	—	—
Succor.....	6 1/2	7 1/2	5 1/2	5 1/2	—	—
Yellow Jacket.....	56 1/2	60	57	60	3 1/2	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons.....	10	10	Ida Elmore.....	2 1/2	3
Amador.....	270	287 1/2	Imperial.....	150	160
Belcher.....	380	400	Kentucky.....	35	36
Buckeye.....	30	30	Mammoth.....	32 1/2	35
Chollar Potosi.....	13 1/2	13 1/2	Meadow Valley.....	—	—
Crown Point.....	290	305	Ophir.....	21 1/2	22
Danby.....	7 1/2	8	Orig. Hid. Treas.....	5 1/2	5 1/2
Eureka Cons.....	23 1/2	23 1/2	Pyreman.....	10 1/2	10 1/2
Eureka.....	19	20	Raymond & Ely.....	80	90
Golden Circle.....	11	11	Sierra Nevada.....	—	—
Gould & Curry.....	102	102	Yellow Jacket.....	58	58 1/2
Hale & Norcross.....	100	110			

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, November 9.	
SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.	
City Tanned Leather, No. 1.....	26 1/2
Santa Cruz Leather, No. 1.....	26 1/2
Country Leather, No. 1.....	25 1/2
French stock comes in more freely, and prices are easier in leading kinds. The cheaper grades still continue firm.	
California kip and calf skins are still scarce and high.	
Jodot, 8 Kil. per doz.....	\$80 00
Jodot, 16 to 18 Kil. per doz.....	75 00
Jodot, second choice, 11 to 15 Kil. per doz.....	60 00
Lemone, 16 to 18 Kil. per doz.....	55 00
Levin, 12 and 13 Kil. per doz.....	58 00
Levin, 16 Kil. per doz.....	72 00
Cornellian, 12 to 14 Kil. per doz.....	65 00
Oregon calf, per doz.....	54 00
Robert calf, 12 and 8 Kil.....	55 00
French kip, per doz.....	1 10
California kip, per doz.....	65 00
Eastern Wheel Stuffed Calf, per doz.....	80 00
Eastern Bench Stuffed Calf, per doz.....	1 10
Eastern Calf for Backs, per doz.....	1 10
Sheep Roams for Topping, all colors, per doz.....	8 00
Sheep Roams for Linings, per doz.....	5 50
California Russia Sheep Linings, per doz.....	1 50
Best Jodot Calf Boot Legs, per pair.....	5 25
Good French Calf Boot Legs, per pair.....	4 50
French Calf Boot Legs, per pair.....	4 00
Harness Leather, per doz.....	30 00
Fair Bridle Leather, per doz.....	48 00
Skirting Leather, per doz.....	34 00
Well Leather, per foot.....	30 00
Buff Leather, per foot.....	17 00
Wax Side Leather, per foot.....	18 00

N. Seibert's Eureka Lubricators for steam cylinders are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First Street, San Francisco. 8/23-3m

LADIES DESIRING TO PURCHASE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 24 Bovey, 137 E. 26th, 477 9th Ave. New York Good work at high prices if desired. 21v1-12mbp

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco Journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Altona, G. Valley, Cal., Oct. 31, 25c.....	Dec. 4—Dec. 26*	
Alameda Coal M. Co., Cal., Sept. 7, 50c.....	Oct. 9—Oct. 30*	
Bellevue, Placer Co., Cal., Nov. 1, 10c.....	Dec. 6—Dec. 27	
Danby & S. M. Co., Nev., Sept. 21, 2c.....	Nov. 13—Nov. 13	
Eagle Quicksilver, Cal., Oct. 30, \$41.....	Jan. 6—Jan. 8*	
Emerald Hill M. Co., S. L. Co., U. Nov. 3, 10c.....	Jan. 2—Jan. 2	
Golden Charlotte, Sept. 12, 5c.....	Sept. 23—Nov. 13	
Gould & Curry, Nev., Sept. 28, 15c.....	Nov. 12—Nov. 22	
Highland S. M. Co., Nev., Oct. 9, 10c.....	Nov. 13—Dec. 4	
Ida Elmore, I. T., Oct. 19, 2c.....	Nov. 24—Dec. 15	
Imperial, G. Hill, Sept. 21, 10c.....	Oct. 24—Nov. 11	
Kentucky, Lugo Co., Cal., Oct. 21, 5c.....	Nov. 27—Dec. 26*	
Kincald Flat M. Co., Cal., Oct. 11, 25c.....	Nov. 13—Dec. 4*	
Nevada Land & M. Co., Nev., Oct. 12, 4c.....	Nov. 11—Dec. 4*	
Orig. Hid. Treas., W. P., July 6, 2c.....	Oct. 31—Nov. 22	
Overman, Nev., Sept. 22, 4c.....	Oct. 28—Nov. 16	
Phoenix, Lander Co., Nev., Sept. 27, 50c.....	Nov. 1—Nov. 21	
Piermont, W. P., Sept. 4, 1c.....	Nov. 9—Dec. 8*	
Ponchartraine G. M. Co., Cal., Sept. 18, 5c.....	Oct. 29—Nov. 27*	
San Jose Co., Nev., Oct. 20, 5c.....	Nov. 23—Dec. 15	
Seaton M. Co., Cal., Oct. 27, 20c.....	Dec. 2—Dec. 30*	
South Eureka Co., Nev., Oct. 24, 25c.....	Nov. 30—Dec. 23	
Starlight G. and S. M. Co., Nev., 1, 25c.....	Dec. 11—Jan. 2*	
St. Louis M. Co., Placer Co., Nev., Sept. 23, 50c.....	Oct. 25—Nov. 13	
South Charlotte M. Co., Owyhee Co., Id., Nov. 7, 2c.....	Jan. 8, Jan. 8	
South Eureka M. Co., Oct. 11, 2c.....	Nov. 22—Dec. 11	
St. Patrick, Placer Co., Oct. 18, 5c.....	Nov. 22—Dec. 11	
Union Gravel M. Co., Cal., Oct. 11, 2c.....	Nov. 12—Nov. 30	
Union, Sierris Co., Cal., Sept. 22, 1c.....	Oct. 23—Nov. 13	
Washington & Creole, Nev., Sept. 21, 50c.....	Oct. 30—Nov. 25	

MEETINGS TO BE HELD.

Kearnsage.....	Annual Meeting, Nov. 9
Nevada Borax Co.....	Meeting, Nov. 13
Opbir O. O. and S. M. Co.....	Meeting, Nov. 14
Kentucky M. Co.....	Annual Meeting, Nov. 22
Northern Hydraulic M. Co.....	Annual Meeting, Nov. 29
Nevada Coal Borax Co.....	Meeting, Nov. 12

LATEST DIVIDENDS.—(Within Three Months.)

Black Diamond Coal M. Co.....	Payable Sept. 16
Chollar Potosi, \$1.....	Payable Nov. 17
Eureka Cons., \$1.....	Payable Sept. 20
Eureka Cons., \$1.....	Payable Oct. 20
Keystone M. Co., \$2.....	Payable Sept. 16
Meadow Valley, \$1.....	Payable Sept. 15
Meadow Valley, \$1.50.....	Payable Nov. 8
Natoma.....	Payable Oct. 5
Pioche S. M. Co., \$1.....	Payable Sept. 15
Raymond & Ely, \$1.50.....	Payable Sept. 18
Succor Mill and M. Co., 50c.....	Payable Sept. 15
Succor Mill and M. Co., 50c.....	Payable Oct. 16
Yule Gravel M. Co., 50c.....	Payable Oct. 6
Yule Gravel M. Co., 50c.....	Payable Oct. 6
Yule Gravel M. Co., 50c.....	Payable Nov. 4

\*Advertised in this journal.

SUCCESS IN BUSINESS.—Success in the business world usually depends upon being thoroughly prepared for its duties. Young men if you would succeed in your business career, secure a good practical business education. This question being settled, the next is where to go. Why, go to the best, of course. Go to HEALD'S BUSINESS COLLEGE, located in the new College Building, 24 Post Street, San Francisco. This is the only school on the Pacific Coast where young men can depend upon being thoroughly fitted for business, by Clark, and Bookkeepers. This school is connected with the "International Business College Association" or Bryant & Stratton chain. Its scholarships are good for tuition in any of the forty colleges, located in all the leading commercial cities of the United States and Canada. There are many interesting features about the school which cannot be discussed here. Ask for a circular, and HEALD'S COLLEGE JOURNAL, which will be sent free upon application. Address E. P. HEALD, President, Business College, San Francisco, Cal. 10v2bhp-3m

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Coca says "You are invited and manufacturers have attempted to attain a reputation for their prepared Cocoes, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary value of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we cannot recommend it more as a valuable beverage." Sold in packets only by all grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brix Lane, London. Export Chocery Mills, Bruges, Belgium. 1625-ly

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., Scientific Press office, San Francisco. Bound in cloth. Price, (very low) post paid, \$1, coin, or its equivalent in currency. Inventors, Engineers, Students, and Apprentices will find it exceedingly useful and especially handy for reference.

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors. Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught. Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TAIT, Oakland, Master Fifth Class. 563bptf

COUGHS AND COLDS.—Those who are suffering from Coughs, Colds, Hoarseness, Sore Throat, &c., should try "Brown's Bronchial Troches," a simple remedy, which is in almost every case effectual. The Troches have been tested by time, and pronounced universally superior to all other articles for the same purpose.

\$5 TO \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7 strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

THE VISALIA DELTA has been recently enlarged, and is now one of the largest, best printed and most extensively circulated local weeklies in California. A new job press and material have lately been added to the office to meet the wants of a thrifty and growing community in one of the most promising agricultural districts of the State. E. M. Dewey, proprietor.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.



## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

A good practical assay of tailings, sulphurets, etc., is made by chlorination. To conduct it successfully requires considerable skill and very careful manipulation, but the details are not difficult to understand or practice.

Sulphurets must first be roasted, to remove arsenic, sulphur, etc. This may be done in an iron pan over a stove or open fire. Of course the ore must be weighed before it is roasted if it is desired to ascertain its value. If an iron pan is used for the roasting, it must be first coated with chalk to protect the iron from the action of the sulphur. This may be done by mixing whiting or pulverized chalk with water and applying it in the form of paste with a brush; several coats may be necessary. Three hundred or four hundred pounds of ore is a convenient quantity to treat at once.

The apparatus required will be a strong water-tight harrel with one head removed. Three inches from the bottom, a second or false bottom is fixed which is pierced full of small holes. Between the bottoms and on one side a half-inch hole is bored to allow of the introduction of a small lead pipe which connects with the generating apparatus. This hole must be so low down that every drop of water will run out through it, and when in use the harrel is placed in a position slightly inclined to facilitate such flow. The harrel is placed on a board larger than its base. The board is also slightly inclined and cut with grooves centering at a single point. The edge of the board must project over its support so that a suitable vessel may be placed under it when required.

When the harrel is placed in position, one thickness of gunny sack or other very coarse cloth is laid over the holes in the false bottom. The object of this is that the gas may pass freely, but that no ore can fall through. The roasted ore is then made slightly damp with water and placed loosely on the cloth. Care must be taken in filling the harrel to have the ore as loose as possible. When the harrel is full it is covered with a cloth and then with a tight cover.

The generator is a large flask of glass capable of holding at least a gallon. To the neck is fastened a good cork, pierced with two holes through which pass tubes of glass which are at least half an inch in internal diameter. One tube rises a few inches above the cork and passes down to within an inch of the bottom of the flask inside. The other tube only passes an inch below the cork, and at an inch or two above, bends at a right angle and connects with a washing hottle.

Coarsely pulverized bin oxyd of manganese is placed in the flask to a depth of two inches. A little water is added and the whole shaken. The cork and tubes are then properly replaced and the generator is connected with the washing hottle and the washing hottle with the harrel so that its tube will pass through the hole between the bottoms. This joint must be made tight, either by calking with rags or with a lute made of linseed meal and plaster of paris in equal proportions.

The washing hottle is simply a hottle with a wide neck. Its capacity should be about a quart. It is fitted with a good cork and half filled with water. The tube from the generator passes through the cork and ends below the water. Another tube commences in the same cork but above the water. The other end of this tube is the one which connects with the harrel. The object of the wash hottle is to retain any acid which might pass over with the chlorine.

When the apparatus is arranged and it is certain that all the joints are tight, a small funnel of glass is placed in the end of the open tube of the generating flask, and common muriatic acid is poured little by little into it. The acid passes down to the manganese. No gas can escape by that tube as its end is under the surface of the water. As soon as action begins chlorine is generated, and there being no other

outlet, passes through the bent tube to the wash hottle. As it bubbles through the water it leaves any acid which may have passed over with it and passes on pure and dry to the harrel. The stream of chlorine must be continued for several hours, according to the quantity of ore treated. If action in the generator begins to be sluggish the flask may be placed in a vessel of hot water or upon a sand bath over a gentle fire. If after several hours, on lifting the cover of the harrel a stifling smell of chlorine and a greenish colored gas is observed, the operation may be considered as finished. The generator may or may not be disconnected and the harrel left undisturbed for twenty-four hours. If the generator is not disconnected the water of the washing hottle may pass over to the flask, but that will do no harm.

The action which takes place in the harrel is as follows: three equivalents of chlorine combine with each equivalent of gold forming the ter-chloride of gold, which is soluble in water.

After the proper time has elapsed hot water is poured in small quantities at a time upon the top of the ore in the harrel, the small hole in the bottom being first opened and a vessel placed to receive what passes through. This is best done with a small watering pot to insure an even distribution. The water is applied in small quantities at a time. After a time a dark colored fluid appears at the hole and following the grooves in the board upon which the barrel is placed falls into the

verized. What passes the ordinary battery is fine enough.

2d. The ore must be thoroughly roasted. No smell of sulphur must be given off when the operation is finished.

3d. The ore must not be too wet and must be placed as loosely as possible in the harrel.

4th. The stream of gas must be continued until the whole mass is saturated.

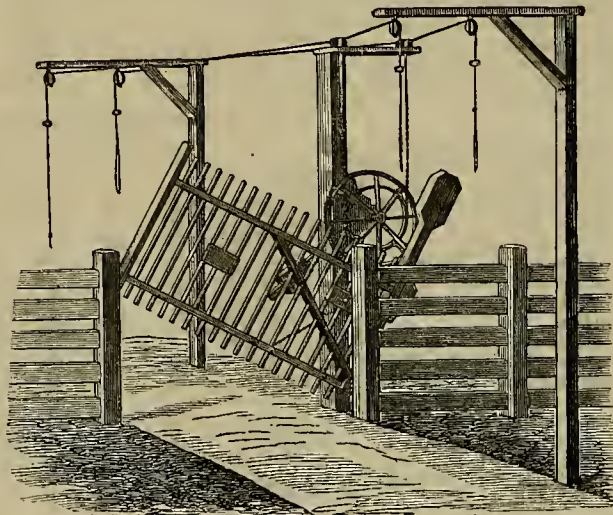
5th. Water must be added by very small quantities at a time, and the operator must be sure that all the gold has been washed out.

6th. Great care must be taken to lose no particle of the gold in transferring the contents of the flask to the filter.

By carefully observing these rules the mill man possessing ordinary judgment can make practical assays of his own tailings and sulphurets, and thus ascertain if they are worth shipping or if they are rich enough to warrant the erection of chlorination works.

## Barthel's Improved Gate.

No doubt many of our readers may have seen, at the late Mechanics' Institute Fair, the gate of which our engraving is a representation. To those who have not, however, some slight description will be necessary. The object of this gate is to allow a passage through the gateway without the inconvenience of getting in and out of a



BARTHEL'S IMPROVED GATE.

vessel placed to receive it. The leaching must be continued until the water comes off colorless, and until a portion after being acidulated with muriatic acid, gives no precipitate with a solution of sulphate of iron. The contents of the harrel are then worthless and may be thrown away. The dark colored fluid which contains all the gold, must then be slightly acidulated with muriatic acid and a saturated solution of sulphate of iron poured in as long as any precipitate falls. The solution of sulphate of iron must be clear, made so either by filtration or settling.

The precipitation is best conducted in a glass flask like the one used for the generator. If the quantity is large several flasks may be used. After standing for some time to settle, a few drops of the iron solution is poured in, and if no more precipitate forms, the operation is completed, and the whole contents of the flask may be poured on a good paper filter placed in a glass funnel. What passes through, if clear, may be thrown away, but the black powder, which is the gold, remains on the filter and may be washed with clean water and the whole dried in the funnel. When the filter is dry, it may be removed from the funnel and carefully rolled up and placed in a crucible with fluxes and melted in the manner before described. When the crucible is cold it is broken, and the button of pure gold weighed and its value calculated.

Suppose 400 pounds of the ore was operated upon, and the bullion weighed .072 of an ounce Troy. It is evident that 2,000 pounds or a ton would give five times as much, or 0.36 Troy ounces. An ounce of pure gold being worth \$20.6718, this multiplied by 0.36 would give the value of a ton.

$20.6718 \times 0.36 = \$7.44$ —the value per ton.

Certain precautions are to be observed in this process, which is the best and simplest for sulphurets.

1st. The ore or sulphurets must be pul-

carriage or other vehicle. By the use of inventions like these, one need have no fear of restive horses, nor be compelled to get out and lift a heavy gate, by main strength, as is frequently the case, in order to pass through. You can drive up and by a slight pull on the rope the gate is opened; after you are inside, or outside, as the case may be, another pull on the other rope, and it is closed without the slightest exertion or trouble.

This contrivance consists of a gate having a horizontal axis upon which it turns, near the bottom, so as to remain steady when open. A post sufficiently high is placed near the end of the gate, and arms extend in either direction so that the operating cords will hang convenient for use when approaching from one side or the other. These cords pass over pulleys at the top of the post, and thence around a large wheel or pulley near the top of the gate, so that the wheel can be turned by them in either direction. An eccentric pulley is attached to this wheel, and the cords which move the gate pass around it, so that when the gate is first started the cords act upon the smallest radius of the eccentric, and thus have the greatest power. A sort of latch is so fixed as to hold the gate in place when open or shut, and the operating cords act on this latch and raise it before the gate is moved. By this device the gate is so balanced that it will remain in either position without being excessively heavy to open or shut. The counter-balance consists of a weight which is attached to an arm, wheel, or eccentric, and is so calculated as to nearly balance

the gate in all its positions and allow it to be easily moved.

It will be seen there is no intricate mechanism in connection with this device, and that in fact there is no machinery whatever, since the whole contrivance is so poised as to be easily raised or lowered by simply pulling a rope. This being the case, there is no danger of it getting out of order, and the latch precludes the possibility of it falling when up, or being raised when down, without having recourse to the rope. When a neat and convenient gate like this can be easily procured it is a pity to see so many tumble-down ones as we do in traveling through the country.

This invention, the patent for which was obtained through our agency, was devised by Michael Barthel, of Pacheco, Contra Costa County, Cal., from whom further information may be elicited by addressing as above.

## Mechanical Progress.

Reader, did you ever stop to inquire what the condition of the present age would be were it not for the steam engine and the telegraph? No doubt you have often thought: "What a great thing the steam engine is;" or, "How convenient the telegraph;" but their real value to the world can only be arrived at by imagining ourselves deprived of their present use.

Without the steam engine our travelers would be compelled to ride on horseback as the most expeditious method of going from place to place. By this means an ordinary trip across the plains would consume a large part of a year, and would be fraught with trials and sufferings such as can be realized only by those who have made such a journey. Instead of receiving a daily mail, seven days from New York, we would have to go back to the old pony express, and wait two or three months to receive a reply to a letter written to our friends in the East. Instead of "A trip across the world in ninety days," we would have to wait for wind and tide, and in an ordinary sailing vessel make the voyage at the expense of two or three years. Not only is the steam engine a great convenience for travelers, but its power is exercised in constructing our cities, our docks, our public works; in fact, it would be hard to mention any department of business in which it is not employed.

Without the telegraph, business men, especially importers and exporters, would be doing a grand lottery business half the time. By means of the telegraph we are enabled to converse with friends thousands of miles away, in the space of a few moments. Hardly had the fire which recently swept away a great portion of the city of Chicago, fairly commenced to burn, ere the telegraph announced to almost every part of the world the fact; and as the dire calamity progressed, the telegraph transmitted to the waiting thousands the hopes, the fears and doings of the people, and the chances of saving the city; and ere the rains had ceased to burn, the same telegraph sent back cheering words of comfort to the homeless and houseless sufferers.

Without the railroad and the telegraph the United States would be too large to be held under one confederation. By its means a continual circulation of its population is kept up which induces friendship and a fellow feeling. We are now as a single neighborhood, able at any moment to communicate with our neighbor, or jump aboard the car and make him a call. By being able to do and act speedily, wrongs are redressed and rights established, where otherwise the wrong would slumber and the right be suppressed until open rupture would end all.

Take away the steam engine and the telegraph, and render their invention impossible, and we put our foot upon progress, and doom the world to an unequal, cold and gloomy barbarism, during which the dark ages would repeat themselves, and mankind be little better than the brutes.



## USEFUL INFORMATION.

## Why do not Animals Talk?

They would, if they had anything to say. There must be a very nice correspondence between the muscular construction of the mouth, the vocal apparatus at the top of the windpipe, and the brain in order to produce articulate language. None of the carnivorous animals, such as dogs, lions, tigers, cats, etc., have snug, tight-fitting lips. On the contrary, they have no circular muscles, as in man and the grass-eating animals. Their lips are pendulous, as may be noticed, sagging by their own weight, exposing some of their under-jaw teeth. Even if they had thoughts, they could not be symbolized by articulate sounds, because labials could not be produced. In the social animals the brain, in proportion to their bodies, is exceedingly small, and therefore supposed to be inadequate to mental operations beyond the manifestations of their instincts. A few birds possess an imitative faculty of copying and reproducing the voices of others, but the range of their articulation is confined to lingual sounds exclusively, because their horny beaks admit of no flexibility for varying a tone. Man alone is a talking being.

Still all animals, and even insects, have a method of making their wishes and intentions known to each other. How they do it is still a secret for which no opensesame has been discovered. Bees, wasps, spiders, beetles, and common house-flies comprehend the meaning of their kindred associates. So do horses, oxen, cows, and all the wild animals of the forest. Wolves concert attacks requiring not only a strong force, but stratagem; and to complete any proposed expedition of a formidable character implies exact acquaintance with all minutiae of an expedition. How is a plan explained without words? That is a grave question.—*Etc.*

## Facts About Ropes.

"Alston's Treatise on Seamanship" gives the following facts and rules for computing the strength of ropes:

To find what size rope you require, when roven as a tackle, to lift a given weight, divide the weight to be raised by the number of parts at the movable block, to obtain the strain on a single part; add one third of this for the increased strain brought by friction, and reeve the rope of corresponding strength.

One-sixth of 40 tons is  $6\frac{2}{3}$  tons, which, with one-third added, is 9 tons nearly, for which you should reeve a six-inch or six and a half inch rope.

Conversely: To find what weight a given rope will lift when rove as a tackle: Multiply the weight that the rope is capable of suspending by the number of parts at the movable block, and subtract one-fourth of this for resistance.

Thus: 8.9 tons, the strength of the rope, multiplied by 6, the number of parts at the movable block, minus  $13.3$  or one-fourth, gives 40.1 tons as the weight required.

Wire rope is more than twice the strength of hemp rope of the same circumference; splicing a rope is supposed to weaken it one-eighth.

The strongest description of hemp rope is untarred, white, three-stranded rope; and the next in the scale of strength is the common three-strand, hawser laid rope, tarred.

**A BONE CRUSHER FOR DOMESTIC USE.**—At the last fair of the Smithfield club, Islington, the house of Hancock & Co. exhibited a new and exceedingly useful invention, namely, a machine for crushing and grinding bones by hand, so that a cook could break, crush, or grind bones to any desired size. As a quarter of a pound of bone contains as much gelatin as a pound of meat, it stands to reason that a machine that enables us to recover the whole of this, and, at the same time, reduce the bones to a condition ready for conversion into superphosphate, must prove decidedly successful. The crusher is made of steel and cast iron, and can be screwed to a block or solid table; and it costs in London one pound twelve shillings.

Such a machine would be very valuable on every farm to crush and grind bones for the above-named purposes, and for feeding to poultry. If some one of our California inventors would set themselves to work, and produce a machine that would accomplish what is above set forth, they would have an invention which ought, and one we think would, pay.

## Painless Killing.

In regard to the freedom from pain incident to death produced by carbonic acid gas when administered in large quantities, it may be interesting to note that, in large foundries, where iron is melted in cupolas, there is always a large quantity of carbonic oxide passed into the stack. This volume of gas in some instances cannot escape freely by the flues, and blows out of the charging door. Sometimes workmen in the act of charging the cupola, are deluged by a flood of the gas, and in all cases fall instantly insensible, and would die if not dragged away from the poisonous atmosphere. When restored to consciousness they cannot remember any sensation of any kind—certainly none of pain attending their insensibility. In one instance a workman engaged in repairing a furnace in this city, remained in it while an adjacent one was put into blast. The superabundant gas passed partially into the place where he was working, and so quickly did he succumb under its influence as to cut short something he was saying to those outside, so as to show that between the time of uttering one word and another to all appearance he was dead. It was with the utmost difficulty that he was restored, and he had no recollection of what had happened. It has been a matter of considerable interest whether this result is brought about by the carbonic acid or by the carbonic oxide gas. Some who have breathed pure carbonic oxide gas have noted this effect, while men plunged suddenly into carbonic acid gas, as in wells, have as suddenly become insensible.—*Philadelphia Ledger.*

## Adulteration of Lard.

Some time ago, the stock of prepared lard being exhausted, a quantity was procured from a respectable pork-dealer. It was beautifully white; so much so, that the writer was led to question his ability to produce anything equal to it. The first trial was in preparing ointment of nitrate of mercury. The color, when the mercurial solution was added, was the reverse of citrine, indeed decidedly saturnine, developing in a short time to a full slate color. Surprised at this unprecedented result, the usual precautions having been taken as to temperature, etc., the lard was suspected, and on examination, was found to contain a large proportion of lime. Some time after, being in conversation with a lard-renderer, a hint was dropped as to the relation of lime to color, when the information was confidentially imparted that a common practice among lard dealers was to mix from two to five per cent. of milk of lime with the melted lard. A saponaceous compound is formed, which is not only pearly white, but will allow of the stirring in, during cooling, of 25 per cent. of water. So much for appearances.—*Canadian Pharmaceutical Journal.*

## To Transfer Ornaments to Carriages, Wagons, Etc.

This beautiful art is now practiced by many painters, who are either in a hurry with their work, or for economy's sake.

Pictures expressly designed for carriages are now sold, and the amateur painter is enabled thereby to finish a job of carriage painting in fine style.

These pictures may be stuck on, and the dampened paper carefully removed, leaving the picture intact upon the panel, requiring no touching with the pencil. The proper way to put on decalcomanie pictures is to varnish the picture carefully with the prepared varnish (which can be obtained with the pictures,) with an ornamenting pencil, being sure not to get the varnish on the white paper. In a few minutes, the picture will be ready to lay on the panel, and the paper can be removed by wetting it, as already described; and when thoroughly dry, it should be varnished like an oil painting. Be particular to purchase none of those transfer pictures, except those covered with gold leaf on the back, for they will show plainly on any colored surface, while the plain pictures are used only on white or light grounds.—*Painters' Manual.*

**THE NEWSPAPER OF TO-DAY.**—One man in a hundred reads a book; ninety-nine in a hundred read a newspaper. Nearly a century ago, when the American press, which is now a spreading oak, was in its green twig, Thomas Jefferson said he would rather live in a country with newspapers and without a government, than in a country with a government but without newspapers. The press, instead of being the fourth, is the first estate of the realm.

## GOOD HEALTH.

## Chewing Gum a Bad Habit.

In most of the Eastern States the habit of chewing gum has become quite general, especially among school girls. We are not aware that it has been very generally introduced into California, and we trust it never may be. A gentleman lately while passing along the streets of a western city counted in 15 minutes no less than 70 ladies who were "chewing" what he supposed to be gum.

Dr. T. F. Hicks, in a late number of the *Medical Independent* talks as follows upon the bad effects of this habit:

Of course it will not be pretended that this habit is either as injurious or as nasty as that of chewing tobacco, yet it is not all together innocent.

When food is taken, saliva is secreted to aid in masticating it. When other substances are chewed, saliva is, at first, secreted as for food, but the vital instincts soon recognizing the nature of the substance, excrete a fluid similar to saliva for the defence of the tissues. This fluid (thrown out against tobacco, gum, etc.) is really an excretion. The hile occasioned by taking poisonous medicines has, by careful experiment and analysis, been found to be quite a different substance from that secreted by the liver in its healthy action. So the fluid which the salivary glands produce during protracted chewing of that which is not good food, is quite different from healthy saliva. The waste, however, is probably just as if it were healthy saliva. Those who habitually chew gum unduly exercise the salivary glands, thus wasting vital force and injuring the glands, occasioning in them either ultimate debility, or undue development in size. There is also danger of permanent depreciation and poisoning of the salivary glands.

**CHILDREN'S HEADS.**—It is astonishing how many mother's neglect the daily practice of washing their children's heads. It is equally astonishing how few really good mothers appreciate the benefits arising from a morning bath for the head. It is just as essential to wash the head as the face—more so in fact. The head should be washed before the face, rubbing it lively with the fingers, this restores to activity all the latent vital forces, secures a perfect circulation, brightens the ideas, and gives a healthy tone to the growing hair.

A head that is washed in cold water every morning is never troubled with dandruff, or diseases of the scalp—the hair grows soft and abundantly, and headaches are seldom beard of. Children living in the country especially, and playing in the dust and dirt all day, should have the benefits of this practice regularly.

**WATER AND HEALTH.**—It has been ascertained in Great Britain that the death-rate among men and animals is very sensibly affected by the quality of the water they drink, whether hard or soft. The hard is much more favorable to health. Thus, those who live over the lime of the coal formation, with the shales, and marls, and magnesian limestones of the sandstone formation, where the waters are hard, surpass the average of the country in height and weight. The tallest men of England are over the limestones of Yorkshire. The finest breeds of horses and cattle originate in the hard-water tracts. On the other hand, the diminutive Welch and Highland sheep, and the Highland pony, are found in the soft-water regions, among the gneiss and slate.

**SLEEPLESSNESS AND INDIGESTION.**—"How should sleeplessness in a very young babe be treated? Also, what will cure indigestion and acidity of the stomach?"

Cure the indigestion, and the sleeplessness will disappear. To do this, feed the baby less frequently, and do not allow it to take anything whatever into its stomach except milk, and that only at certain stated times, not less than three hours apart. If the acidity does not soon disappear, extend the time to four hours. Be sure and be regular in the times of feeding. It is very important.—*Herald of Health.*

## Things to Remember.

Edward Everett became overheated in testifying in a court-room, went to Fanenil Hall, which was cold, sat in a draught of air until his turn came to speak: "But my hands and feet were ice, my lungs on fire. In this condition I had to spend three hours in the court-room." He died in less than a week from thus checking the perspiration. It was enough to kill any man.

Professor Mitchell, while in a state of perspiration in yellow fever, the certain sign of recovery, left his bed, went into another room, became chilled in a moment and died the same night.

If, while perspiring, or warmer than usual from exercise, or in a heated room, there is a sudden exposure, to chill cold air or a raw, damp atmosphere, or a draught, whether at an open window or door, or street corner, the inevitable result is a violent and instantaneous closing of the pores of the skin, by which waste and impure matter, which was making its way out of the system, is compelled to seek an exit through some weaker part. To illustrate: A lady was about getting into a small boat to cross the Delaware, but wishing first to get an orange, she ran to the bank of the river, and on her return to the boat found herself much heated, for it was summer; but there was a little wind on the water, and her clothes soon felt cold, which produced a cold that settled on her lungs, and within the year she died of consumption.

A Boston ship-owner, while on the deck of one of his own vessels, thought he would lend a hand to some emergency, and pulled off his coat, worked with a will, until he perspired freely, when he sat down to rest awhile, enjoying the delicious breeze from the sea. On attempting to rise he found himself unable and was so stiff in his joints that he had to be carried home and put to bed, which he did not leave until the end of two months, when he was barely able to hobble down to the wharf on crutches.

Multitudes of women lose health every year, in one or more ways, by busying themselves in a warm kitchen until weary, and then throwing themselves on a bed or sofa, without covering, and perhaps changing the dress for a common one, as soon as they enter the house after a walk or shopping. The rule should be invariably to go at once, into a warm room, and keep on all the clothing for at least five or ten minutes, until the forehead is perfectly dry. In all weathers if you have to walk or ride on any occasion, do the riding first.—*Hall.*

**REMARKS UPON MEDICAL RECEIPTS.**—Emergencies often occur in every family when the services of a physician cannot be procured promptly, and something should be done while "waiting for the doctor." Many of the "Medical Receipts" which we give from time to time, may answer the valuable purpose of relieving suffering humanity until medical attendance arrives. Slight cases of sickness may often be relieved by simple remedies, if used in time, without calling in a physician; but judgment and discretion must be used in giving even "simple remedies."

**CIDER FOR A COLD.**—Common sweet cider boiled down to one-half, makes a most excellent syrup for coughs and colds for children—is pleasant to the taste, and will keep for over a year in a cool cellar. In recovering from an illness, the system has a craving for some pleasant acid drink. This is found in cider which is placed on the fire as soon as made, and allowed to boil, then cooled, put in casks, and kept in a cool cellar.

**AS THE BABYLONIANS** had no physicians with whom to consult in case of sickness, they adopted a novel plan to obtain relief under such circumstances. They had the infirm brought into the Forum, and those who passed by were asked their opinion as to the nature of the disease. They demanded of each one if he ever had the same distemper, if he knew any one who had it, if so, how he was cured?—*Family Herald.*

**GAS WORKS FOR WHOOPING-COUGH.**—The *Indianapolis News* of a late date says: For the past two or three weeks an average per day of forty or fifty persons having the whooping-cough visit the purifying room of the gas-work. It is claimed that a cure is effected by the person coming five or six times and staying ten or fifteen minutes each time. Relief is felt usually within a day.

**FROST-BITTEN LIMBS** should be immediately bathed in cold water, and rubbed until heat is restored. Avoid warming numbed hands and feet at the fire.



# Scientific Press.

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## San Francisco:

Saturday Morning, Nov. 11, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Nov. 8, 1871.—Legal Tenders buying 88¼; selling, 89¼. Gold in New York to-day, 112¼.

## Table of Contents.

An Explosion in the Sun—III.: Academy of Sciences.....	289
MECHANICAL PROGRESS.—Phosphor-Bronze; Finishing Steel; Seasoning Timber by Steam; Xylonite; Blasting Timber with Dynamite; Surface Blow for Steam Boilers.....	290
SCIENTIFIC PROGRESS.—Ice Fleas; Freezing of Water Under Pressure; The Barometer and the Sea Level, etc.....	290
Action of Oxysulphide of Copper on Argentic; On the Loss of Quicksilver; Battle Mt., Nevada; Effects of Climate on Fruits; Mines in Inyo County; Summer in Our Inland Valleys.....	291
MINING SUMMARY.—Stock & Exchange Board; Market Report.....	292-93
On the Assay of Gold; Barthel's Improved Gate—III.; Mechanical Progress.....	294
USEFUL INFORMATION.—Facts about Ropes; Painless Killing; Adulteration of Lard. GOOD HEALTH.—Chewing Gum a Bad Habit; Children's Heads; Things to Remember.....	295
Tides and Currents of San Francisco Harbor—Singular Facts; Mining Discoveries; A New Work on Metallurgy; Revival of the Mining Interests.....	296
The Philosophy of Giffard's Injector; Cheney's Horse-power; Patents and Inventions.....	297
DOMESTIC ECONOMY. DOMESTIC RECEIPTS. MECHANICAL HINTS. LIFE THOUGHTS.....	298
The Water Question.....	300

## Notices to Correspondents.

We have received a box of mineral specimens and fossils from Mr. A. J. Brown, which we have not yet had time to examine.

## Recent Mining Discoveries.

CALIFORNIA.—A ledge of silver-bearing quartz was discovered recently, in the field of E. M. Day, within the limits of the town of Lower Lake, in Lake county.

The recently reported coal discoveries in Capay Valley have been confirmed. Coal of a good quality has been found in several different localities.

UTAH.—Rich gold-bearing quartz has been found in Bingham Cañon. Assays of the ore have reached \$2,000 per ton. Considerable excitement in regard to these discoveries prevails in Salt Lake City, and a great number of people have gone out to the mines.

ARIZONA.—A mining excitement has broken out in Prescott, over the discovery of silver ledges in Groom's Basin, and on the divide between the basin and Upper Lynx creek. The mines are situated in a timbered district, southeast of Prescott. The Bismarck, Cornicopia and Homestake are among the richest ledges discovered. Some of the ore, which yielded \$1.25 per pound was taken into Prescott, and in consequence, a rush from that place commenced at once, and a number of claims were taken up the same day. Many employes from sawmills and stores joined the rush for the mines. Fine specimens of horn silver have been found.

LOWER CALIFORNIA.—Ledges of gold-bearing quartz have just been discovered on the frontiers of Lower California, and a party of 18 Mexicans from the Almaden Quicksilver mines left this city a few days ago, with their families, to work upon one of the mines.

## General Revival of Mining Interests.

The latest reports from the mining districts throughout the Pacific States and Territories, betoken a general revival in this branch of industry. This new and increasing interest in mining is caused by recent rich developments, which have been made; improved processes for reducing ore; and increased facilities of transportation to and from hitherto remote mining regions.

The extensive and valuable discoveries in the south and southwestern portions of Utah, and the eastern and southern districts of Nevada, have inspired a confidence and given an impetus to mining enterprises, such as has not been witnessed for several years past.

In Arizona, within the last few weeks, both gold and silver mines of extraordinary richness and extent have been found near Prescott, resulting in great excitement throughout the Territory. In Colorado, important developments have been made, and the yield of the mines is constantly and steadily increasing. Rich and extensive deposits of ore have also been struck in the Comstock Ledge recently. In California, several new enterprises have been inaugurated, by which gravel claims and placer mines heretofore abandoned, on account of water, will be drained and worked to advantage.

The stubborn ores of the Humboldt region, Eastern Nevada, and Arizona, which formerly resisted treatment, are easily reduced by new processes of roasting and smelting, and whole districts which had been neglected for years, are filled with miners, taking up old claims and locating new ones.

The completion of the trans-continental railroad and the construction of branch roads have penetrated and continue to penetrate regions, rich in mineral wealth, but hitherto so remote from all means of transportation, that there were no facilities for getting supplies or machinery, or shipping the ores. These heretofore inaccessible districts have become instinct with new life; provisions are obtained cheaply, and the richest ores can be despatched to reducing works, both east and west, and immediate returns received. The miners, who were in former times dependent upon capitalists entirely to develop their property and put up machinery, can now with the improved means of transportation, rely upon their own resources, and at a comparatively small expense send their ores to market. The completion of the Southern Pacific Railroad and the lines extending southward from Colorado and Utah will open up a region rich in mineral wealth.

The investment of European capital in productive mines is giving a stimulus to further enterprises, and assisting greatly in developing the resources of the country.

THE first number of Crofutt's *Western World* is before us, published by Geo. A. Crofutt, proprietor of Crofutt's trans-continental guide. It is devoted to the railroad and kindred interests of the great west; and to information for tourists, miners, and settlers this side of the Mississippi. The paper is a large one, bearing on its first page an engraving of unusual size entitled "Progress." We are pleased to see that Mr. Crofutt is still looking out for the interests of the Western States.

MR. O. W. EASTON, recently from Salt Lake, will deliver a lecture at Mercantile Library Hall, on next Monday evening. The subject is one of interest to all at the present time—Six months in Utah, its People, Institutions and Mines; Polygamy and its remedy. Mr. Easton merits a good audience, and we trust that he will have one.

GRADING on the Northern Pacific Railroad is now completed as far as the Red River.

## Tides and Currents of San Francisco Harbor.—Singular Facts.

It is well known that during the late civil war our friends at the South resorted largely to the use of torpedoes for the defense of their harbors, and by them were enabled to hold some of them, Charleston in particular, against the repeated attacks of our naval forces.

No less than nineteen armed vessels and transports were totally destroyed during the rebellion; many others were injured. Further, it is known that one of the first acts of France during the late war with Prussia was to fit out a formidable naval expedition accompanied by a land force, probably one of the most formidable naval expeditions ever set afloat, for the purpose of attacking the sea forts of Northern Prussia, and thus creating a diversion in favor of the proposed invasion of the South.

Following this there were no results affecting the prosperity of her arms; for, while the French fleet was getting ready, the Prussian harbors were being studded with torpedoes.

The French fleet arrived at its destination, reconnoitered, but no assault was made, nor was there one attempted.

Our Government profiting by these lessons, has instituted an examination of all our harbors, both on the Atlantic and the Pacific Coasts, in order to ascertain to what extent they may be defended by similar means in the future.

On inquiry of the proper authorities, we learn that Gen. Alexander, the Senior Engineer of the Army on this Coast, received orders, some months since, to have a series of Current Observations made in this harbor with the view of devising a system of torpedoes and floating obstructions as auxiliary means of defense in case of war with a maritime power.

He detailed Lieut. Handbury, U. S. Engineer Corps, on this duty, and the result of his labors is the development of some very remarkable facts, not hitherto known, concerning the Tidal Currents of this Bay, especially those between Fort Point and Lime Point.

We are not enabled to give in detail the results of these observations, but will lay before our readers some of the most prominent facts, trusting that they will be interesting to many.

The range of the tide at Fort Point from extreme high water to extreme low, spring-tides, is about eight feet. The duration of an ebb tide of this kind is about seven hours.

From calculations based upon these data, the velocities obtained from observations, the area of the cross section at the Golden Gate, and the area covered by the tidal waters that pass this point, it was found that approximately 110,000,000,000, cubic feet of water run out past Fort Point in seven hours.

This is equal to nearly one cubic mile of water, and is more than the amount which passes New Orleans in twenty-four hours during the highest known flood of the Mississippi River.

Supposing this water to have a mean velocity during this time of, say three miles per hour, the curious of our readers may find it interesting to determine the horse-power that it is equal to, and the number of steam engines that it could replace, provided its immense force could be utilized.

At the Golden Gate, observations were taken on the currents at the surface and at various depths down as low as three hundred feet below the surface. Their velocities and directions were very remarkable. The maximum velocity obtained was, for the surface current, 6.6 miles an hour, while that at the depth of 300 feet was running, at the same time, 10.5 miles an hour.

The currents at depths intermediate do not vary according to any known law between these rates, but are continually

changing their relation to each other, that is, for a considerable length of time the lower will be the faster, then they will change and strata intermediate between the surface and the lower, will have the greatest velocity. These changes in the velocities of the undercurrents seldom seem to affect that of the surface. This is always slower than any of the other currents, except perhaps the one in immediate contact with the bottom.

The directions of the currents are not always in the same vertical plane, but frequently they spread out like a fan, making various angles with each other. Near the time of a change of tide from ebb to flood, or from flood to ebb, it is not an unfrequent occurrence to find the surfaces running in one direction, and the lower current in a direction exactly opposite, with the currents at intermediate depths running in directions between.

The time of slack water is not, as is generally supposed, coincident with the time that the tide reaches its highest or lowest phase, but it occurs sometime later. This difference at the Golden Gate is an hour and a half or two hours. That is, after the tide has reached its highest point, has changed, and commenced to fall, the water continues to run in for an hour and a half, and when it has reached its lowest point, changed and commenced to rise, the water in like manner continues to run out.

Besides the observations taken between Fort Point and Lime Point there were many others taken at various places throughout the Bay and on the Bar, all of which have developed facts which are very curious and exceedingly interesting; not only on account of their connection with subjects of a purely scientific and military nature, but from their relation to the commercial wants of our harbor.

How far these current observations are regarded as favorable for the purpose for which they were instituted—that of defense—we did not learn. We imagine, however, that it would tax the ingenuity of our oldest pilots to anchor a system of torpedoes in the strong current of the Golden Gate, so as to have them in the right place at the right time. Doubtless they would have to be placed inside the entrance of the harbor in more quiet waters.

These are many questions besides the one of defense, but connected with our commercial prosperity, that render it exceedingly desirable that we should have a complete and reliable current chart of our system of inland waters, showing the directions and velocities of the currents throughout the Bay, at all the different stages of the tides. We hope to see such a chart at no distant day.

J. S. PHILLIPS'S NEW BOOK ON MINING, ETC.—This work is now printed and will be ready for distribution from the SCIENTIFIC PRESS office, Nov. 13th. Our English cotemporary, the *London Mining Journal*, the editor of which has perused some of the advance sheets, writes the following:

MINING LITERATURE.—A volume which promises to be of great value to practical miners, is at present preparing for publication, and will be ready for issue in the course of a few weeks, by Messrs. Dewey and Co., of San Francisco, under the title of the *Explorers', Miners', and Metallurgists' Companion*, by Mr. J. S. Phillips, who is well known to the readers of the *Mining Journal* as having had considerable experience in mining in Cornwall, and whose name in America is connected with the "Wee Pet" assaying machine, which, although capable of being packed for travelling in a 5 or 6-inch box, contains all the apparatus necessary for roasting, fusion, ignition, and all the general purposes of the analyst and assayer. Mr. Phillips's volume is divided into five sections. That treating of Geology and Mineralogy describes the formation of the earth, mineral veins, &c.; the supposed actions and re-actions that have been, and are continually, taking place; the peculiar characteristics of true fissure veins; and the more generally recognized premonitory indications, in the shallow portion of veins, for probable increase of mineral in depth. The second section teaches how to explore, where to explore, the peculiar kinds of the primitive and secondary rocks that concern the miner, as being most congenial for rich veins, &c. The remaining three sections are devoted to assaying and discriminations, mining and engineering, and metallurgy respectively. The volume will fill some 600 pages, more than three-fourths of which are already printed. Messrs. Trübner and Co., of Paternoster-Row, will supply the book in England, where it will, no doubt, find many readers.



## THE PHILOSOPHY OF GIFFARD'S INJECTOR.

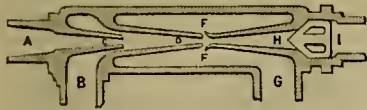
EDS. PRESS:—Will you please explain the principle of Giffard's Injector in your columns and oblige.

G. W. W., Virginia City.

The Giffard Injector, as all know, is an instrument in which a jet of steam coming out of a boiler, and being condensed by a stream of water, surrounding and mingling with it, imparts to that water such force or velocity that it is able to enter the water space of the same boiler, notwithstanding the resistance of its internal pressure.

In its simplest form, it consists of the following parts, shown in the little cut which we have prepared to facilitate the description, and which shows simply the principle of the instrument, all details of construction being omitted: A nozzle, A, by which steam is admitted in the axis of the apparatus; around this an annular space, by which water from B flows in around the steam, and mingling with and condensing it in the conical tube, D, is driven through the pipe H, and valve, I, into the boiler. Excess of steam or water from want of adjustment escaping by the outlet, F, G, and G.

The action of this instrument seems, at first sight, to be discordant with certain principles, which are with good reason accepted as absolutely certain, and on this account its operations are difficult of comprehension. This apparent discord, however comes from an omission of certain



important conditions. At the outset then, the idea that a jet of steam escaping from a boiler, should be able to enter the same boiler again carrying with it an added quantity of water, seems to be in direct opposition to the general maxim, that the amount of a force can in no way be increased by the intervention of any sort of machinery.

The following consideration, however, will, to some extent, at least, remove this difficulty. If we suppose the reservoir of steam in the boiler to receive no addition of force or energy, it is clear that its elastic force or effective pressure will be reduced in proportion to the volume of steam withdrawn. If half its contents are removed, the pressure exerted by what remains will be reduced to half. On the other hand, if water, even at the full temperature of that in the boiler, is introduced, it will only increase the pressure in proportion to its volume. To restore the pressure of the boiler, diminished by withdrawing half its capacity of steam, the same amount or half its capacity of hot water, must be forced in. Now in the case of the injector, we know that nothing like this occurs. The steam escapes as steam, and is returned as water, with a volume reduced, say 1,000 times; and even if it carries with it twenty times its volume or weight of fresh water, there would still be a loss of pressure or effective force in the boiler, fully equivalent to the work performed in introducing the supply.

The force implied in expelling the steam, and therefore lost by the boiler, would thus clearly be a greater one than that restored by the introduction of the water. We have as it were, a rod or cylinder of steam, say 1,000 feet long, expelled with a given force or pressure from the boiler, and then by concentrating the force involved in this moving mass, we introduce against the same pressure a rod or cylinder of water, say twenty feet in length.

Clearly this does not imply any self-production or increase of force, but simply the concentration of an extended or diffused power into a condensed effect, as when a ship is pushed through the water by the action of the wind upon her sails. In short, steam pressure being well up in a boiler, if we damped the fire and started the injector we should soon run down the pressure to a point so low as to stop the action of the instrument, and this quite independently of the lower temperature of the injected water.

The first point to be apprehended in the special mode of action in this instrument is the difference between motion and pressure. Pressure is an isolated unit of force; motion, expressed by velocity, is the sum of many of these units.

Where a pressure exists without motion,

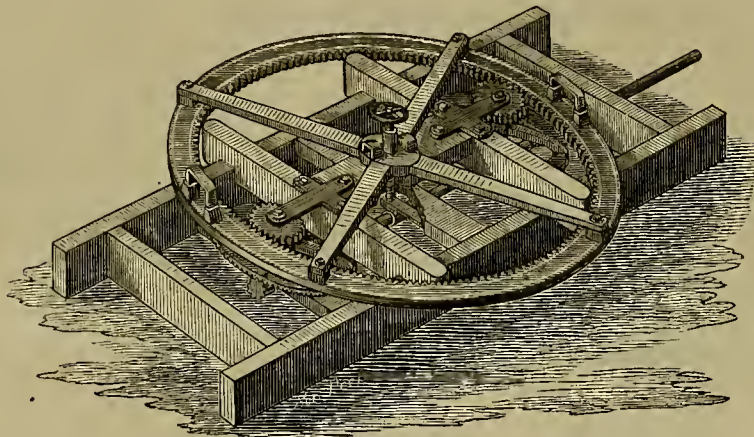
some force, instant by instant, is in action, but each instant its previous effort is counteracted and destroyed by whatever obstacle or resistance prevents motion from taking place, and keeps up the state of mere pressure. Thus no more power is at any time present in the bodies concerned, than that unit or single element evolved by the force in a single instant.

When, however, the resistance is wholly or in part removed, then the force produces a certain amount of motion in the body affected during the first instant, to which it adds in the second and third, and so on; the force thus being transformed into motion, and accumulated in that form in the moving body, so developing a constantly increasing velocity, proportioned to the time of action or number of force units involved.

Thus the particles of escaping steam may be regarded as acquiring velocity during the time that they are running from the boiler to the combining nozzle, and also while they are "closing up" by the process of condensation, and they then drive into the boiler again with this accumulated force, each portion encountering, not a similarly accumulated resistance, but only the momentary action of the opposing pressure at the instant of entrance.

This principle is well illustrated in the apparatus designed by M. E. Bourdon, to illustrate the relations which exist between velocity and pressure, in solid as well as fluid bodies. It consists of a cylinder, into which air is forced by means of a condensing pump, with a valve opening inwards on the end.

Immediately opposite this valve is placed another cylinder with an air gun attached,



CHENEY'S IMPROVED HORSE-POWER.

and which receives its air from the first cylinder by means of a tube, thus giving the same pressure in each. When these cylinders are charged the air gun is discharged and the ball will enter the first cylinder through the valve against a pressure exactly equal to that which developed its own motion.

The velocity of the ball expresses the sum of all the forces exerted by the air upon it during the many instants occupied in passing out of the barrel of the gun; the resistance of the valve is simply the single force of the air pressure, exerted for the instant required to open it.

Again; we may consider the action in another and quite different light. Let us suppose that the steam is issuing with the full velocity due to the pressure, from an orifice one inch in area. In the nozzle of the injector it is condensed into water, without, however, suffering any change in its velocity from this cause. Its bulk will be reduced by this means say 1,000 times, and therefore its area of cross section (the velocity being constant), will experience a similar reduction. Neglecting loss by friction, it would then be able to enter the boiler again by an orifice one one-thousandth of that by which it escaped, and we should thus have the total force expended by the steam within the boiler on the area of an inch in expelling the steam jet, concentrated upon the area of one one-thousandth of an inch, and therefore greatly superior to the opposing pressure exerted upon that small area.

If an additional quantity of water were taken up by the jet, as in the actual case of the injector, its velocity would be diminished in an equal proportion, and the area of inlet required for its passage increased in like amount to make up for its slower motion, and again in equal proportion by reason of the greater volume to be introduced; but we clearly have margin enough for both these deductions.

Thus, suppose 20 times the weight of the steam added to it in fresh water, thus

reducing its velocity to one-twentieth, and demanding an area of inlet increased 20 times for increased material; in place of 1,000 to 1, we should have the areas of escape and entrance, or the power and resistance as 1,000 to 20x20; or 400, or as 2½ to 1, which shows an abundant margin for loss by friction, etc.

It may occur to some that this reasoning looks like contradiction to the doctrine of hydrostatic equilibrium between large and small connected vessels, but a little thought will show where the distinction lies.

In a large and small vessel, the change of diameter in the different parts of the fluid is accomplished by the resistance of the sides of the vessel, and thus if the area is contracted, so also is the actuating force opposed and counteracted by the resistance of these opposing surfaces; but in this present case, the contraction of the jet is the result of no pressures externally applied, but of the internal inter-molecular contraction of the moving particles in condensing, which can, therefore, have no effect upon their actuating force. We are, therefore, fully warranted in assuming that the contraction of the jet by condensation is accompanied by a concentration of its moving force.

In this as well as in all other modes of explaining this instrument, we are brought back to the condensation in the nozzle, D, as the true cause of the development of power and of the effect produced. It will, therefore, be readily apprehended that if by reason of a high temperature in the feed water no condensation took place, the instrument could not work; while a temperature short of this would diminish,

cured so that its free end will be supported just above the tumbling-rod and below the screw-rod. If the screw-rod be turned so that the screw will force the end of the plate or spring down upon the tumbling-rod, which receives its motion from the master-wheel through a pinion at one or at both ends, it is easy to see that it serves as a brake to regulate the speed of the machine.

In order to apply a brake of the above described construction to a horse-power it is necessary to do it through the hub or standard of one of the wheels of the power so that it shall not interfere with any of the machinery, and it is evident that this brake can be applied through the hub of any of the wheels which are in the proper position with relation to the tumbling rods. As placed in the one represented in our cut it is convenient to the seat of the driver, who can thus regulate the speed of the machine or stop it entirely by a mere motion of the hand, in case there should be an unruly horse in the team or any accident happen.

This valuable and much-needed improvement was patented through the SCIENTIFIC PRESS agency by Return I. Cheney, of Petaluma, Sonoma county, Cal.

## PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

FOR THE WEEK ENDING OCT. 31.

GOVERNOR FOR STEAM AND OTHER ENGINES.—Charles P. Bowen, Silver City, Idaho Ter.

WARDROBE.—Anna Davis, Reno, Nev.

GANG-PLow.—James M. Huie and Elisha Card, San Francisco, Cal.

GRAPE-CRUSHER.—Ferdinand B. Schoenlein and August Klein, San Francisco, Cal.

RAILWAY RAIL CHAIR.—Thomas Donahy, Empire City, Nev.

SPARK-ARRESTER FOR STEAM BOILERS.—John Gates, Portland, Oregon.

MILLING MACHINE.—Wm. Hawkins, San Francisco, Cal.

FRICTION CLUTCH.—George W. Hedges, San Francisco, Cal.

APPARATUS FOR LIGHTING GAS BY ELECTRICITY.—John Vansant, San Francisco, Cal.

COMBINED TENT AND COt.—Wm. H. Penrose, Fort Lyon, Col. Ter. Antedated Sept. 30, 1871.

ADJUSTABLE RAIL-JOINT.—John R. Sullivan, Woodland, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible by telegraph or otherwise at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

DESTRUCTION OF THE ARCTIC FLEET.—We have news the past week of the almost total annihilation of the Arctic whaling fleet. Over thirty vessels have been crushed and destroyed or so hemmed in by the ice as to compel their abandonment, involving a loss of two millions of dollars, the most of which was insured. We appear to have truly fallen upon an era of calamities.

OUR NOTICE concerning the agency of T. W. Drullard, recently, resulted from a series of accidental and unaccountable delays. Mr. D. has proved an honorable and active agent, and will continue on our list of those whom we heartily recommend to the consideration of our friends.

BEQUEST TO THE DEAF AND DUMB ASYLUM.—R. W. Durham, of Chico, recently deceased, left property to the State Deaf and Dumb Asylum valued at about \$100,000.

LAURA D. FAIR has sought solace in prison by dramatizing Owen Meredith's poem, "Lucille."



## DOMESTIC ECONOMY.

### Household Economy.

EDS. PRESS:—I always have a great many things to find fault with, too many perhaps; but the complaints I am about to set before you, concern everybody, and if everybody would combine to put down the impositions they relate to, they will easily be remedied, and for health and happiness, should be. Let me premise that I keep five scrap books; one poetical and miscellaneous, one cook book, one medical, one agricultural and one for comments, prints, etc.; that few—not speaking of my book for engravings, and the one for newspaper prints worth preserving. Now, when scissors in hand, I lie down to rest with a paper, and it furnishes me with nothing worth scissoring for either of these, no matter what exciting serial or political problem it may contain, I throw it aside with disgust; but I have a different complaint to make of your paper, and yet it is not one of the evils that I should like to see remedied. My complaint is that if I want to slip out a long receipt, that I think I could now easily refer to in one of my books, I can't cut it out because I invariably discover something valuable on the other side, that I can't destroy. I think I shall have to take two papers, one to file, the other to sacrifice to scrap books. All this introduces a scrip I send you, cut from some paper, which you can publish again if you see fit. It is about the narrowness of boot soles, and it is correct in its statements.

I have also seen articles on the injury which high heels do the foot and leg. A person with a moderately high instep cannot get a boot that will not be an unwearable torture, without buying a pair a size too large every other way; and then the heels are put on with nails which wear out the stocking and excoriate the heel, and which hammering down don't cure. I cut up old hats into soles, and until the nails come through them, am easy.

Why all this torture? Cannot shoemakers learn to make wearable shoes, such as they did years ago? But in vain do I entreat the best San Francisco artists in leather, to please make my shoes *broad enough and large enough*, and with high insteps.

Not a thing to walk out in, while boots lie all around. I sometimes sit and calculate which of the different tortures will be most endurable for the day—Oh! shoemakers, if ye have souls to feel, I pray you consider ours.

COMPLAINT 2D:—Let any housekeeper find an old yeast powder box obtained in years ago—one that she has put by, perhaps with seeds in it or other trifles, and endeavor to put upon it the cover of one of the present or two last years, and she will find *it can't be done*. In fact the boxes are a size smaller—Why? To pay for stamps, I suppose; but the yeast powders are dear enough without that. They become quite an item in the month's expenditure. Can't this imposition be rectified? If not—Why?

TAPIOCA is recommended as a cheaper and more nutritious article of food than even potatoes and rice, by no less a personage than the Prince of Travancore, the southernmost province of Hindostan. The cultivation of the manioc plant, from the root of which tapioca is made, as starch is from potatoes, is rapidly extending in the province. Its advantages are that it grows in almost any soil, requiring but little labor, and after the first month but little moisture. It is very productive, and is easily prepared for consumption. The Indian government have taken measures to test the merits of the plant; but as the food it yields is almost exclusively of the starchy or fat-producing character, and contributes little or nothing to the formation of muscle, it is difficult to see what benefit would be derived from increasing its use.

HARD AND SOFT WATER.—An attentive correspondent has just sent us, for this department, a very practical article in regard to softening water for domestic use, which we shall publish next week.

TO MAKE GRAVY THAT WILL KEEP SEVERAL DAYS.—Lay in a stew-pan or suitable vessel half a pound of lean, juicy, fresh meat of the poorest pieces or trimmings; over this put half a pound of pickled pork, or a little less bacon of the side meat. Cut up 2 medium-sized onions and a few sprigs of parsley. Pour into the vessel a tumblerful of boiling water (not more than this); cover the vessel, and let the meat stew, turning it once, until it is a rich brown color; then pour in boiling water enough to just cover it; let it simmer an hour; remove the meat; thicken the gravy slightly with a paste made of brown flour and water; let that simmer half an hour; add any essence of ham or good gravy that may be saved for such purposes. Put in an earthen vessel well covered, and exclude from the air. Warm it before serving; season with any catsup liked. For making all brown gravies, fry the meat first, and pour over hot broth, gravy or water; use the browned sugar or flour for coloring and thickening. Kidneys, livers, necks of poultry, the soraggy parts of the necks of animals, may be used for making the stock for gravy.

PENNYROYAL FOR FLEAS.—The oil of pennyroyal will drive these insects off; but a cheaper method, where the herb flourishes, is to throw your dogs and cats into a decoction of it once a week. Mow the herb, and scatter it in beds of pigs once a month. I have seen this done for many years in succession. Where the herb cannot be got, the oil may be procured. In this case, saturate strings with it, and tie them around the necks of dogs and cats; pour a little on the back and about the ears of hogs, which you can do while they are feeding, without touching them.

By repeating this application every 12 or 15 days, the fleas will flee from your quadrupeds, to their relief and improvement, and your relief and comfort in the house. Strings saturated with the oil of pennyroyal, and tied around the necks and tails of horses, will drive off lice; the strings should be saturated once a day.—*Scientific American*.

BOTTLING APPLES.—If you have a quantity of empty self-sealing bottles, and you wish to prepare a large quantity of apple sauce and to have it until spring, an excellent way is to bottle it. Prepare the sauce according to whatever rule you wish; then, when boiling-hot, pour into the bottles and put on the covers immediately. Apple sauces prepared now and bottled will have more flavor than that made in the spring of the year.

A SUBSTITUTE FOR COFFEE.—From chemical analysis it appears that the seed of the asparagus when dried, parched and ground makes a full flavored coffee, but little inferior to Mocha, containing in common with tea, and coffee, the principle called tannin. Dry the asparagus berries well, after being thoroughly ripened, then rub them on a sieve; thus the seeds are readily separated.—*Journal of Health*.

TAKING CARE OF BROOMS.—Have a screw with an eye or ring on its end; this can be screwed into the end of the handle of each new broom. It is handier to hang up by than a string, though the latter will do if always used. It is bad for a broom to leave it standing upon the brush. If not hung up, always set it away with the stick end down.

INDELIBLE INK.—By placing a piece of caustic in the end of a quill, and whittling the side to a point, any cloth, being first slightly damp with water, may be written on so indelibly that no art can remove the color.

PROTECTION FROM DAMP WALLS.—Boil one pound of powdered sulphur in two quarts of water for half an hour. Apply with a brush while still warm, and you will prevent the damp and unwholesome oozings from the brick walls of your workshops.

WATERY POTATOES.—If your potatoes are watery, put a piece of lime about as large as a hen's egg in the pot, and boil with them, and they will come out as mealy as you please.

If brooms are wet in boiling suds once a week, they become very tough, will not cut the carpet, last much longer, and always sweep like a new broom.

TO CLEAN LAMP-SHADES.—Lamp-shades may be cleaned with soap or pearlash; these will not injure or discolor them.

FRIED SQUASH.—Slice thin, dip in egg, then in flour, and fry in butter. Excellent.

### Domestic Receipts.

To remove egg stains from silver, rub with table salt.

CHAMPAGNE CIDER.—To 35 gallons of good cider put one gallon of strained honey, or eight pounds of good white sugar; stir them up well and set aside for a week. Clarify the cider with one quart of skimmed milk or six ounces of dissolved gelatine, and add five quarts of pure spirits. After two or three days bottle the clear cider, and it will become sparkling.

HOW TO DEODORIZE OIL.—You may deodorize any oil by shaking it with a weak solution of bleaching powder which has been previously acidulated with hydrochloric acid. This is best done in a large bottle, into which oil and lye are introduced, the bottle stopped and now and then shaken. After two or three days pour off the oil and wash it several times with water, when it will have lost its unpleasant odor.

PEACH-LEAF YEAST.—One of our Southern exchanges gives the following recipe: Take three handfuls of peach-leaves, and three medium sized potatoes; boil them in two quarts of water until the potatoes are done; then take out the leaves and throw them away; peel the potatoes, and rub them up with a pint of flour, adding sufficient cool water to make a paste. Then pour on the hot peach-leaf tea, and scald for about five minutes. If you add to this a little old yeast, it will be ready for use in three hours; if you add none, it will require to stand a day and a night before use. Leaves dried in the shade are as good as fresh ones. As this is stronger than hop-yeast, less should be used in bread-making.

WELCH RABBIT.—Put into a frying-pan a quarter of a pound of cheese cut up into thin slices. Pour on it half a pint of sweet milk. Stir in an egg that was already beaten up, add a fourth of a teaspoonful of mustard, a little less red pepper, already ground, and a teaspoonful of nice butter. Stir this mixture all the time. Then add, lastly, a few crackers well broken up, and after thoroughly incorporating them into the mixture, turn it all into a heated dish and cover it.

### Mechanical Hints.

CAST STEEL that has been burnt or spoiled by overheating can be partially restored by heating it over and quenching in water four or five times, each of less extent than the first overheating and decreasing; lastly, hammering the steel till nearly cold, to give the greatest condensation before hardening. Some prefer the steel thus recovered for cutting-tools, and the treatment really produces a remarkable change, as a fragment of the same bar in the spoiled state will be extremely coarse, and another of the restoration as extremely fine.

CLEANING WINDOW PANES.—Housewives sometimes are very much surprised at their inability to remove the smoky and stained appearance from their window panes. Glass is often changed by a very short exposure to the weather. Sunshine and rain alone, will effect a most marked change in certain (soft) kinds of glass. When a little soda will not remove the stains, the only way to remedy the trouble is to buy new glass.

CLEANING POLISHED BRASS.—The first requisite is to remove all grease. This may be done with a solution of concentrated lye, and fine pumice or rotten stone. A weak solution of muriatic acid and clean scouring dust will then brighten it, after which it may be oiled, with olive or cocoa nut oil. Vinegar and common salt may be used instead of the acid. Weak vegetable acids are preferable on fine work, and vegetable oils better than animal fats.

ANOTHER METHOD.—Take eight parts water, and one part muriatic acid; mix them, and put in common water lime, until the mixture is thicker than water. Shake up well before using. Pour some on a rag, and put on the brass. Let it stay a minute or two and then rub. It will clean the dirtiest brass more quickly and better than anything else, so says a correspondent of the *Scientific American*.

IMITATION WALNUT is made by washing butternut-wood with lime-water and then varnishing. Lime-water will also stain cherry-wood to a good imitation of mahogany.

REFINED OIL FOR MECHANISM can be prepared by putting zinc and lead shavings, in equal parts, into good Florence olive oil and placing it in a cool place till the oil becomes colorless.

## LIFE THOUGHTS.

BORROWED garments seldom fit well.

HASTE often trips up its own heels.

A FOOL generally loses his estate before he finds his folly.

A MAN that hoards his riches, and enjoys them not, is like an ass that carries gold and eats thistles.

TOWERS are measured by their shadows and great men by their calumniators.

TRUE courage and love are the syllables of faith.

THE chains of habit are generally too small to be felt till they are too strong to be broken.

THERE is an efficacy in calmness of which we are unaware. The element of serenity is one which we peculiarly need.

If good people would but make goodness agreeable, and smile instead of frowning, in their virtue, how many would they win to the good cause.

THINKERS are as scarce as gold; but he whose thoughts embraces all his objects, pursues it unwearyedly, and fearless of the consequences, is a diamond of enormous size.

EVERY desire bears its death in every gratification. Curiosity languishes under stimulants, and novelties cease to excite surprise until at length we cannot even wonder at a miracle.

WHAT a world of gossip would be prevented if it was only remembered that a person who tells you of the faults of others intends to tell others of your faults.

OBSCURITY leaves a man free, but a famous man is a slave to his fame. Incense is bought dear. Uneasy lies the head that wears a crown, although the crown may be of laurels.

### The Influence of Example.

Men's lives are pages of history. Those who read are stimulated to good deeds thereby, or taught to avoid the mistakes such lives record. There cannot be too much said, or written, to encourage men of wealth to devote their leisure and money toward developing the hearty in Nature, recovering and regenerating waste places, and affording men with less means and opportunities for the study of rural art. The influence of an example of good taste in the adornment of a single place in a neighborhood or town, reaches far into the future and molds more than most men think, the external features of that neighborhood or town, and affects more ultimately the lives of those whom it influences. If one man plants a tree his neighbor wants one. If one housewife has a flower *parterre*, another is not insensible to the enthusiasm with which the first exhibits and praises her floral pets. If one man sees his neighbor clearing out an old swamp, a ravine, or a rough place of any sort, and converting its rude angularities into symmetrical lines of beauty, he ever after looks upon the rough places of his own domain with the possibilities of what it may become in his mind's eye, and realizes, sooner or later, the ideal beauty which the realizations of his neighbors have established.

BE A MAN.—Foolish spending is the father of poverty. Do not be ashamed of work nor hard work. Work for the salary or wages you can get, work for half price rather than be idle. Be your own master, and do not let society swallow up your individuality—hat, coat and boots. Do not eat up or wear out all that you earn. Compel your selfish body to spare something for profits saved. Be stingy to your own appetite, be merciful to other's necessities. Help others and ask no help for yourself. See that you are proud. Be too proud to be lazy; too proud to give up without conquering every difficulty; too proud to be in company that you cannot keep up with in expenses; too proud to be stingy.

THE study of the magnet is one of un-failing interest to grown people as well as to children, and it is a matter of surprise that so little attention is given to so profitable a subject. We can find nothing that teaches so forcibly of Christ and his influence upon the soul—nothing that could more thoroughly convince a skeptic of his ignorance and folly.

If half the pains were taken by some people to perform the labor allotted them that are taken by them to avoid it, we should hear much less said about the troubles of life, and see much more actually completed.







THE WATER QUESTION.

By A. B. BOWERS, CIVIL ENGINEER.

[Continued.]

Swamp Land Basin, North of the American River.

On the east side of the Sacramento, above its junction with the American, is a basin forming part of several townships, many thousand acres of which are lower than the banks of either streams. This basin receives the drainage of a considerable area on the east, and its reclamation involves therefore, the leveeing of the rivers, the disposal of the drainage, and the irrigation of the land. The most judicious drainage and irrigation, can be determined only after the necessary surveys have been made. It will perhaps be found advisable to carry portions of the drainage into each river, though it may be necessary to carry the whole of it either under, or over the American. The catchment drains should be so located and constructed, as to furnish facilities for the irrigation, not only of the swamp land, but of the adjacent uplands also; and the drainage water should be stored up in reservoirs for this purpose, wherever an opportunity presents itself.

The rainfall within this basin, would probably be absorbed by the soil, though in very wet winters, some pumping might be necessary; but, if so, it would not be sufficient to occasion any great expense.

Other Basins.

Similar conditions are met with in the basins on the west side of the Sacramento, both north and south of Knights Landing, and in that between the Sacramento and Feather rivers; and similar measures, of course, are necessary for their reclamation.

Basins on West Side of Lower Sacramento.

On the west side of the lower Sacramento, extending for several miles on either side of the southern boundary of Yolo, is a basin, lower, in places, than the level of the ocean; and these portions are always covered with water; the evaporation of a single season, being insufficient to dispose of it all, though it probably carries off five or six feet per annum.

Yolo Basin.

North of this basin, perhaps eight or ten miles below the city of Sacramento, a transverse swell, probably not more than three or four feet above the land on either side, crosses the tule from upland to river. The highest part of this swell, is supposed to lie a little north of the old turnpike, known as "The Swift Grade." North of this swell extending to near where the California Pacific Railroad crosses the tules, and perhaps a mile or two farther, is another basin lying wholly in the county of Yolo, so shallow that the water quickly evaporates whenever it ceases to be fed from Putah and Cache creeks.

Regulation of Drainage.

Through these two basins, according to the best maps within our reach, passes the drainage of about twenty-five hundred square miles, or one million six hundred thousand square acres; embracing the whole, apparently, of Lake county, nearly all of Yolo, and a large portion of Napa. By the construction of the necessary levees, reservoirs, dams, and canals, this drainage may be regulated so as to furnish irrigation for swamp land and upland; and the arable portion of this region may thus be made a perfect garden in fertility and productivity. Should it be found impracticable to construct reservoirs of sufficient capacity, in connection with canals of irrigation to retain all the waters of Putah and Cache Creeks, the surplus can be carried between suitable embankments to some of the head branches of Cache Slough. This, however, is not likely to prove necessary. When this drainage has been disposed of, and the proper levees constructed, the deeper portions of the lower basin, will soon become dry from evaporation, unless large springs, or waters of filtration, should necessitate pumping. This, however, is not probable, and, if necessary, would occasion no great expense.

[To be concluded.]

Opera Glasses, Pebble Spectacles, and Eyeglasses, in great variety, wholesale and retail. C. MULLER, Optician, 205 Montgomery street, Russ Block, San Francisco. 7v23-3m

PROPOSALS FOR BUILDING THE FOUNDATION WALLS OF THE NEW CITY HALL BUILDING, AND ALSO, FOR FURNISHING CEMENT AND BRICK TO BE USED IN THE SAME.

OFFICE OF THE BOARD OF CITY HALL COMMISSIONERS, SAN FRANCISCO, OCTOBER 13th, 1871.

Sealed proposals will be received at the office of the Board, on the City Hall Reservation, corner of McAllister and Leavenworth streets, until 12 o'clock M. of SATURDAY, the 18th day of November, A. D. 1871, for building the foundation and cross walls of the City Hall Building and Hall of Records, and for all the accessory work belonging thereto, in conformity with and according to the plans and specifications, which can be seen at the office of the Architect, Augustus Laver, in this same building, and where all information as to the details of the work can be obtained.

The whole amount of mason work will be about 20,000 cubic yards.

Proposals will state the price per cubic yard for the mason work laid and measured in the wall, completed in conformity with the plans and specifications, and the price per thousand for laying the brick for the jambs, flues, drains, etc., required in the foundation.

Separate proposals will be received at the same time and place for furnishing the following material:

1,000,000 (one million) good, smooth, hard burnt BRICK.

Both Cement and Brick to be delivered on the ground as required.

The whole work is to be done in a thoroughly workmanlike manner, under the immediate direction and superintendence of the Architect and to his satisfaction, and completed in (20) one hundred and twenty working days from the date of the signing of the contract, and the Cement and Brick are to be delivered in the same time, as required.

The Commissioners reserve the right to reject any and all bids.

Parties making proposals for the mason work will be required to give a good and sufficient bond, to accompany the bid, satisfactory to the Commissioners, in the sum of \$5,000, conditioned for the due entering into the contract of the party to whom it may be awarded, and parties making proposals for the brick and cement will be required to furnish with their bids a like bond in the sum of \$2,500 respectively.

To preserve uniformity, all bids must be on blanks furnished by the Board of Commissioners, which can be obtained from the Secretary at their office.

No bidder will be allowed to deposit more than one bid for the work, and if more than one appear at the opening of the bids, all the bids of such bidders shall be thrown out. The statute provides "that all bids shall be made and contracts entered into upon the express condition that no Chinaman or Mongolian shall be used in the factory, mill, foundry, workshop, or by the firm, company, or person, in doing any of the work bid or contracted for; and a failure to comply with said provision of said contract shall work a forfeiture of said contract."

Payments will be made from time to time of seventy-five per cent. of the estimated amount of the work done and material delivered, and the remaining twenty-five per cent. when the contract is fully and faithfully completed, in warrants drawn on the Treasurer of the City and County of San Francisco, on the City Hall Fund, which warrants, when there are no funds to the credit of said City Hall Fund, will bear 10 per cent. per annum interest from the date of the presentation thereof until paid, and will be paid in the order of their presentation and registration. The expense of advertising will be charged pro rata to the successful bidders.

P. H. CANAVAN,  
JOS. G. EASTLAND,  
CHAS. E. McLANE,  
Board of City Hall Commissioners.

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Worcestershire Sauce.



Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, label, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see names on wrapper, label, bottle and stopper. Wholesale and for export by the Proprietors, Worcester; Grosche and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & SO., San Francisco. 1v23-1y50c

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from 16 to 36 inches, for grinding Corn, Barley, Feed, &c. 2v23-1yins

41 First st., San Francisco.

The "New North West,"

DEER LODGE, MONTANA.

JAS. H. MILLS,.....Editor and Publisher.

The above journal, published in the largest gold-producing Territory, and circulating largely in the great Quartz and Placer Districts of the West Side, is an excellent medium for California Manufacturers and Merchants to reach and acquire the trade of Montana. Liberal rates will be made. Copies sent on application to the publisher.

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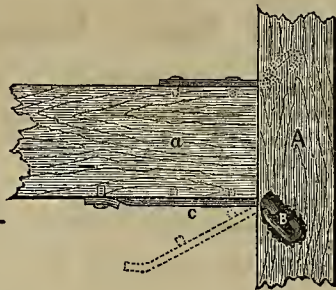
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The Best Bedstead Fastening!

BARLOW'S PATENT, 1871.



Repair Your Bedsteads!

By employing this new California invention, which is bound to supersede all other fastenings.

They are made of Wrought Iron, by machinery, and are easily applied, quickly operate (as may be seen by the above illustration), and never break or wear out. Don't bother any longer with rickety bedsteads, but buy these fastenings and apply them yourself, or send to the inventor, who will repair any kinds of bedsteads at reasonable rates. Examine this patent device, and with the best workmen in the city, you will declare it to be the best and only perfect Fastening.

Orders received at my shop, corner of Sixteenth and Harrison streets, or at 320 Kearny street, Room 5.

1v23-1f-sa

E. T. BARLOW, Patentee.



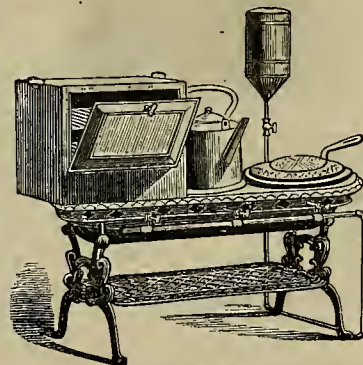
The King of Mineral Springs is the German Seltzer, and

Tarrant's Effervescent Seltzer Aperient is its duplicate. Letters attesting its wonderful Tonic and Anti-Bilious qualities swarm in from every source. The question has been settled whether artificial medicated waters may not be equal to those which burst sparkling from the earth itself. They can; and the Seltzer Aperient, when undoubtedly pure and genuine, proves the fact. Be cautious. Accept none other.

SOLD BY ALL DRUGGISTS.



THE IMPROVED AMERICAN VAPOR STOVE.



No Wood, Coal, Smoke, Ashes, Stovepipe nor Chimneys, and Perfectly Safe, Economy and Convenience combined.

WILLIAM FRIEL, Manufacturer,

No. 69 and 71 Fourth street, S. F.

All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasoline and Patent Oils for Stoves and Lamps for sale. County Rights for sale. 1v23-3m

Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CATYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction and not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to place where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer. N. N. PHELPS, al-ly-ahwp San Leandro, Alameda County, Cal.

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

OVERLAND TRAINS.

Express Daily, via Oakland, Vallejo.	Express Daily, via Vallejo.	November 5th, 1871.	Express Daily, via Vallejo, Oakland.	Express Daily, via Vallejo, Oakland.
7:00 AM	8:30 AM	San Francisco	7:45 PM	8:30 PM
7:45 AM	9:15 AM	Oakland	8:00 PM	8:30 PM
7:55 AM	9:25 AM	San Jose	8:15 PM	8:30 PM
8:40 AM	10:10 AM	Niles	8:30 PM	8:30 PM
11:25 AM	12:30 PM	Stockton	8:45 PM	8:30 PM
	10:30 AM	Vallejo	8:55 PM	8:30 PM
	12:30 PM	Davis	9:10 PM	8:30 PM
1:15 PM	2:00 PM	Sacramento	9:20 PM	8:30 PM
	2:15 PM	Colfax	9:35 PM	8:30 PM
	12:45 AM	Reno	10:45 PM	8:30 PM
	9:00 AM	Winnemucca	4:15 PM	8:30 PM
	12:00 PM	Battle Mountain	1:25 PM	8:30 PM
	4:40 PM	Elko	8:45 AM	8:30 PM
	6:20 AM	Ogden	5:20 PM	8:30 PM

San Francisco and San Jose.

7:10 PM	4:00 PM	San Francisco	10:40 AM	8:30 PM
8:30 PM	5:30 PM	San Jose	5:40 AM	8:30 PM
			7:50 AM	4:10 PM

San Francisco, Stockton and Modesto.

4:00 PM	7:00 AM	San Francisco	8:30 PM	12:30 PM
9:05 PM	11:05 AM	Lathrop	4:45 PM	8:10 AM
10:10 PM	5:50 PM	Modesto	7:00 AM	8:00 PM
8:30 PM	11:25 AM	Stockton	1:45 PM	7:45 AM

Sacramento, Marysville and Tehama.

9:00 AM	2:25 PM	Sacramento	1:05 PM	4:45 PM
10:15 AM	3:25 PM	Junction	12:15 PM	3:25 PM
1:05 PM	4:55 PM	Marysville	10:20 AM	12:00 PM
8:00 PM	8:35 PM	Tehama	6:50 AM	5:40 AM

OAKLAND BRANCH.-LEAVE SAN FRANCISCO, 7:00, 8:10, 9:20, 10:10 and 11:20 a.m., 12:40, 1:50, 3:00, 4:00, 5:10, 6:20, 7:30, 8:40, 9:50, 11:00 and 12:10 p.m. (9:20, 11:20 and 12:10 to Oakland only). LEAVE BROCKLETON, 5:15, 6:40, 7:50, 9:00 and 11:00 a.m., 3:40, 4:55, 6:10, 7:40 and 10:10 p.m.

LEAVE OAKLAND, 5:35, 6:45, 8:00, 9:10, 10:20, and 11:10 a.m., 12:00, 1:40, 2:50, 3:55, 5:05, 6:20, 7:30 and 10:30 p.m.

ALAMEDA BRANCH.-LEAVE SAN FRANCISCO, 7:20, 9:00 and 11:15 a.m., 1:30, 4:00, 5:30 and 7:00 p.m. (7:20, 11:15 and 5:30 to Fruitvale only).

LEAVE FORTY-SEVEN, 4:30, 7:00 and 10:45 a.m., and 3:30 p.m. LEAVE FRUIT VALE, 5:25, 7:35, 9:00 and 11:20 a.m., 1:30, 4:05 and 5:30 p.m.

CALIFORNIA PACIFIC RAILROAD.

Leave	Leave	Arrive at	Arrive	Arrive
S. Fran.	Vallejo	Calistoga	Marysville	Sacramento
8:00 AM	10:30 AM	1:30 PM	4:30 PM	1:30 PM
4:10 PM	6:00 PM	8:30 PM	10:30 PM	8:45 PM
Leave	Leave	Leave	Arrive	Arrive
Sacra to	Marys'le	Calistoga	Vallejo	S. Fran.
7:30 AM	6:00 AM	7:50 AM	10:15 AM	12:30 PM
2:30 PM	9:00 AM	2:15 PM	5:45 PM	8:00 PM

Sacramento, Davis and Marysville.

7:15 PM	11:45 AM	Sacramento	9:00 AM	2:00 PM
8:00 PM	12:40 PM	Davis	8:00 PM	12:30 PM
8:40 PM	1:45 PM	Woodland	7:35 AM	11:40 PM
10:30 PM	4:30 PM	Marysville	6:00 AM	9:00 AM

SAN FRANCISCO & N. PACIFIC R. R.

Leave	Leave	San Francisco	Arrive	Arrive
4:00 PM	4:30 PM	Honolulu	8:45 AM	8:45 AM
6:00 PM	6:30 PM	Peihama	8:20 AM	8:20 AM
6:00 PM	6:30 PM	Santa Rosa	7:30 AM	7:30 AM
6:45 PM	6:45 PM	Healdsburg	6:45 AM	6:45 AM

CAL. P. R. R. CO.'S STEAMERS.

4:00 PM	4:00 PM	San Francisco	10:00 AM	8:00 PM
6:00 PM	6:00 PM	Bonicia	8:00 PM	6:00 PM
2:00 AM	2:00 AM	Stockton	2:00 PM	2:00 PM
		Sacramento		12:00 PM

\*Sundays excepted.

T. H. GOODMAN, A. N. TOWNE,  
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

AMMONIACAL PREPARATION

FOR THE-

Prevention and Removal of Boiler Scale.

MANUFACTURED BY THE

San Francisco Gas Company.

F. I. CURRY, Sole Agent, San Francisco Boiler Works, 123 and 125 Beale street, San Francisco.

This Preparation is proved by the experience of many of our best machinists and engineers to be a perfect cure for the various and dangerous incrustations known as Boiler Scale. It is sold in 5-gallon cans at \$5.25 per can, or in cases of two cans each at \$10.50 per case.

The San Francisco Gas Company also manufactures

Carbonate of Ammonia.

Muriate of Ammonia.

Sulphate of Ammonia.

Liquor Ammonia, Concentrated.

Aqua Ammonia, F. F. F.

Concentrated Crude Ammonia, for Ice Making and other manufacturing purposes.

9v23-3m

THE

Gutta Percha and Rubber Manufacturing COMPANY,

109 California street, SAN FRANCISCO.

Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose, Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Pure Vulcanized Sheet Rubber, Fire Buckets.

12v23-3m

J. W. TAYLOR, Agent.

STEINWAY & SONS'

Patent Agraffe Pianos, GRAND, SQUARE AND UPRIGHT.

Pianos to Let.



A. HEYMAN,

I street, between Sixth and Seventh, Opposite old Capitol, SACRAMENTO. ma18-1f



## Fig. 1

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON  
SMITH'S PATENT TRUSS PLAN.

Also, a BASEMENT. Inquire at 17 New Montgomery  
street. WIESTER & CO



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets.

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers.

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18720-3m GODDARD &amp; CO.

## FULTON

## Foundry and Iron Works.

HINKLEY &amp; CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How-  
street, San Francisco. 3-qy

GEORGE T. PRACY,

## MACHINE WORKS,

109 and 111 Mission Street,  
SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say—

STEAM ENGINES,  
Flour and Saw Mills,  
QUARTZ MACHINERY,  
Printing Presses,  
AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Came, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR  
Pracy's Celebrated Governor.  
TURNING LATHES, Etc., constantly on hand.  
4v23ct

## PACIFIC

## Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron. 9v143m

THOMPSON BROTHERS,

## EUREKA FOUNDRY,

123 and 131 Beale street, between Mission and Howard  
San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v15qr

Miners' Foundry and Machine Works,

OO-OPERATIVE,

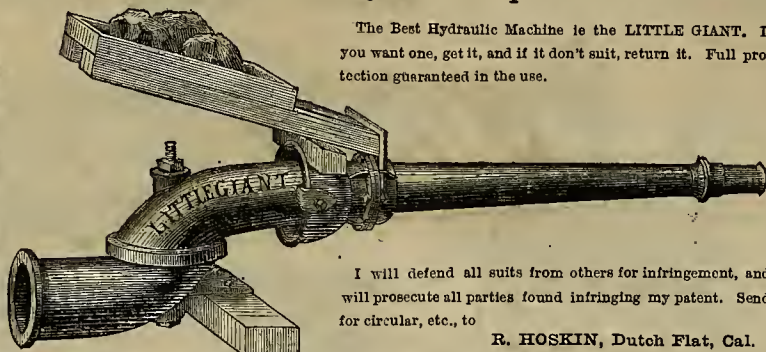
First Street, bet. Howard and Folson, SAN FRANCISCO.

Machinery and Castings of all kinds.

I. L. MORTLHAP, President. 7v23ct

## Hoskin's Patent Little Giant Hydraulic Pipe Joint and Nozzle.

PATENTED JULY 19, 1870.



The Best Hydraulic Machine is the LITTLE GIANT. If you want one, get it, and if it don't suit, return it. Full protection guaranteed in the use.

I will defend all suits from others for infringement, and will prosecute all parties found infringing my patent. Send for circular, etc., to

R. HOSKIN, Dutch Flat, Cal.

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

## BOILERS

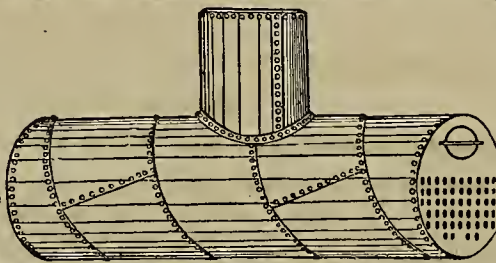
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



Sheet Iron Work

of every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

## THE GRICE &amp; LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. &amp; L. were the PATENTEE'S AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

THE RISDON  
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1863.  
CAPITAL.....\$1,000,000.LOCATION OF WORKS:  
Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Wm. Alvord, C. J. Brenham, C. E. McLane,  
Wm. Norrie, Wm. H. Taylor, Lloyd Tevis,  
James D. Walker.WM. H. TAYLOR.....President.  
C. E. McLANE.....Vice President.  
JOSEPH MOORE.....Superintendent.  
LEWIS R. MEAD.....Secretary.  
24v17-qy

## UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT &amp; NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Quab's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,  
14v1 SACRAMENTO CITYJ. C. CALDWELL,  
President.REESE LLEWELLYN,  
Superintendent.

## COLUMBIA

## Co-operative Foundry Company,

(INCORPORATED MARCH 16, 1871),

133 and 135 Beal Street, between Mission and Howard  
SAN FRANCISCO.

Manufacturers of

MACHINERY AND CASTINGS

of every description.

Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

## JOS. THORNHILL,

BRICKLAYER AND CONTRACTOR.

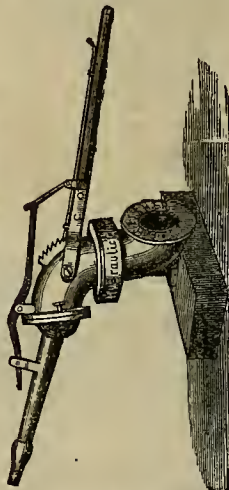
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &amp;c. Orders left with O. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

## Machinery.

## HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE.

is the Best Hydraulic Machine in Use.

MACHINES MANUFACTURED TO ORDER,  
to throw from one to an eight-inch Stream.

9v23-ct

Address F. H. FISHER, Nevada, Cal.

## Longshore's Combination Tool.



This device is just what its name indicates. As a KITCHEN Tool it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &amp;c., &amp;c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

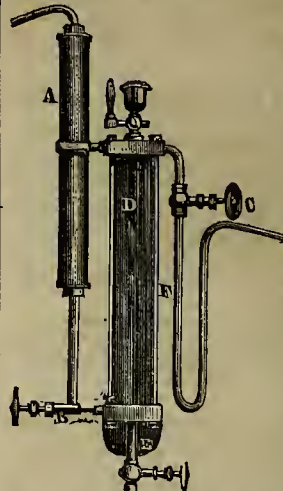
WIESTER &amp; CO.,

17 New Montgomery street (Grand Hotel),  
SAN FRANCISCO.McAFEE, SPIERS & CO.,  
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.  
2v21-ct

## GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission &amp; Fremont streets, San Francisco.

DESCRIPTION.—D, is a glass chamber which contains the lubricant. C is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the ejection of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. 2v21-ct

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Oam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbag," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.  
For further particulars address

FURMAN R. WILSON,

San Francisco.

DEACON &amp; CO.,

## MACHINE WORKS,

West side of Main Street,

Between Mission and Howard,..... SAN FRANCISCO.

ALL KINDS OF

STEAMBOAT WORK, JOBBING AND  
REPAIRING DONE PROMPTLY.

Steam Engines, Pumps, and Mill Work.

7v23-3m

SEVERANCE HOLT &amp; CO.,

MANUFACTURERS OF

## Diamond-Pointed Drills

AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 15, No. 315 CALIFORNIA STREET, San Francisco. 2v20-3m



CRAIG & BREVOORT'S  
Patent Condenser for Steam  
PUMPS, &c.



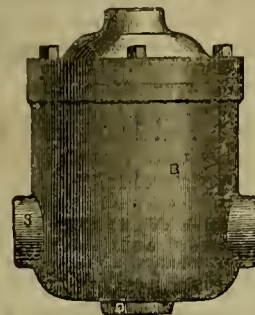
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

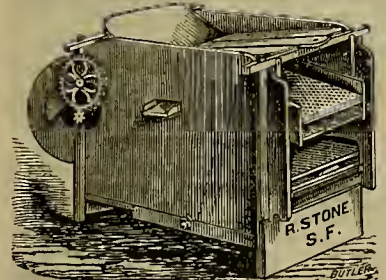
The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT, 6v23eowly 128 Broadway, New York City

THE PATENT  
Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

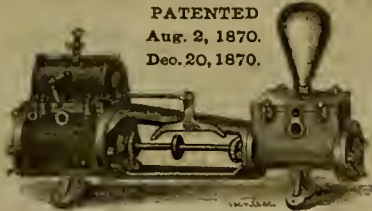
For further information apply to R. STONE, 25v22-3m 422 Battery street, San Francisco.

NELSON & DOBLE,  
AGENTS FOR  
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF  
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.  
18 and 15 Fremont street, near Market, San Francisco  
8v14qr

THE SELDEN PUMP.

PATENTED  
Aug. 2, 1870.  
Dec. 20, 1870.



Combines Simplicity and Durability to a Remarkable Degree.

Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—especially Mining.

Full description in *Scientific Press* of August, 1871.

Catalogues sent on application.

A. CARR,

43 Cortlandt Street, New York.

AGENT WANTED for Pacific Slope.

7v23-ly-cow

NIAGARA STEAM PUMP WORKS.

FIRST PREMIUM

American Institute, 1867 and 1870.

CHARLES B. HARDICK,

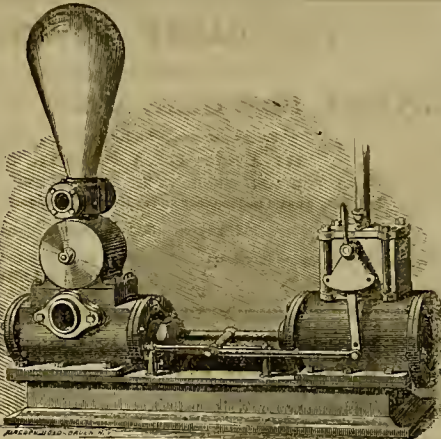
23 Adams Street, Brooklyn, N. Y

SOLE MANUFACTURER

Hardick's Patent Double-Acting  
Steam Pump  
and Fire Engine.

PATENTED IN ENGLAND, BELGIUM AND  
FRANCE. SEND FOR CIRCULAR.

22v26l-cow



I. N. WILFONG'S

PATENT CIRCULATING

STEAM BOILER.

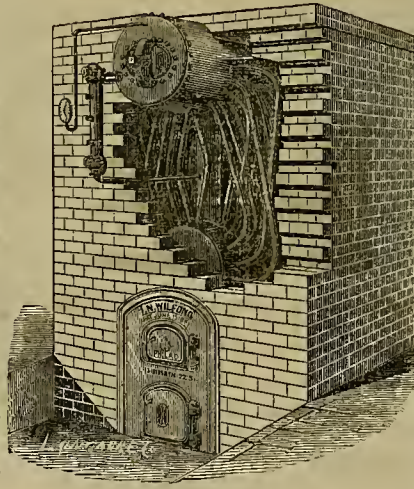
This cut represents an improvement on the old style of Cylinder Boiler, and combines all the following great advantages: Rapid circulation and generation of steam; economy in fuel; durability, safety, and simplicity of construction; requires but little attention; is easily repaired, and moderate at first cost.

We have now a number in successful operation, and respectfully refer to the following well known parties: Hastings & Co., Seventh and Cherry streets; Jos. Lea & Co., 128 Chestnut street; J. S. Huber, Germantown; Holt & Bro., Sixth and Susquehanna avenue; Albion Print Works, Conshohocken, Pa.; S. H. Dickey, Oxford, Pa.—all of which are giving ENTIRE SATISFACTION. Parties wishing to investigate the success of our new Boiler can do so by calling at any of the above named places, or to

I. N. WILFONG,

131 and 135 North Twenty-second St.,  
PHILADELPHIA, PA.,

Manufacturer of all descriptions of Boilers (Rogers & Black's patent included), Tanks, Stills, Pans, and general Iron Work. Orders solicited from all parts of the country, and, when received, promptly attended to. State and County Rights and Royalties for sale as above. 6v23-6m-cow



CAMERON'S  
STEAM PUMPS.

PICKERING'S  
Engine Regulators.

GIFFARD'S  
INJECTORS.

BARTOL'S  
STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



POWER, TAITER & CO.,  
MANUFACTURERS OF



WOOD-WORKING MACHINERY,  
3003 Chestnut street (West end Chestnut street Bridge),  
PHILADELPHIA.

Woodworth Planers a Specialty. 2v23-ly

SHEET IRON PIPE.  
THE  
Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,  
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This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco.

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# SCIENTIFIC PRESS

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,  
Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,  
Patent Solicitors.

SAN FRANCISCO, SATURDAY, NOVEMBER 18, 1871.

VOLUME XXIII.  
Number 20.

## Standard Stationary Steam Engine.

Our engraving represents one of the 10x20 Standard Stationary Steam Engines made by Lane & Bodley, Cincinnati, Ohio, which is of a very neat pattern and convenient size. It is built on a solid iron frame, the centers of the cylinder and main shaft coinciding with its upper surface, the slides resting solidly upon it, and the rock shaft stands short and stiff—all matters of the first importance as bringing the strain resulting from the working of the engine in that position where the strength of the metal can most successfully resist it.

The cylinder is provided with metallic packing, and the heads have ground joints; the valve is set and provision made that its position cannot be lost when taken apart for shipment; the slides are double, as in locomotives, the cross-head working between them; the connecting rod is of wrought-iron and fitted up in the best manner; the main plumb block is bedded down into the frame and is provided with side brasses and adjusting wedges; the main shaft is of wrought iron and of such length that the band wheel may be put outside or inside the journal as is most convenient. The exhaust steam from the cylinder passes through the heater, within which is a core of wrought iron pipe, entering and issuing at opposite ends thereof. The crank is accurately balanced, steam and exhaust ports of ample dimensions, and the valve movement combines all the advantages of expansion cushioning and lead.

The pumps may be attached to the bed of the engine, provision being made for operating them at high speed, or they are designed for independent action as desired. In either case the lift pump discharges into a short vertical pipe, connected at its lower end with the receiving valve of the force pump, having a cock to regulate the flow of water thereto, and an iron vessel holding several gallons, with an overflow at its side, screwed upon its upper end. Cold water is thus supplied to the force pump by gravity, and the surplus is permitted to flow back to its source. If the construction of an elevated tank be afterwards determined upon, the funnel may be removed and the pipe continued and inserted in the tank near its bottom. The force pump fed with cold water never gives any trouble, and the water is afterwards heated in its passage through the coil within the heater, nearly, if not quite, to the point of ebullition.

For further information concerning this engine address Lane & Bodley, corner of John and Water streets, Cincinnati, Ohio.

## Spontaneous Combustion.

May not the late destruction of the schoolhouse in Binghampton, Solano county, and the Harpending block in this city, both be attributed to spontaneous combustion?

Our attentive Binghampton correspondent, R. H. Barkway, asks for some information about "spontaneous combustion," the immediate cause of the query being in consequence of the recent destruction, by fire, of the Binghampton schoolhouse, whereby a loss of some \$1,200 was incurred. There had been no fire in the house for a week, and we infer that spontaneous combustion is suspected as the origin of the fire from the following paragraph in the note of our correspondent:—

"Will woolen or cotton cloth or rags

of various kinds would be likely to be brought together under precisely the conditions which the Detroit experiments prove may cause self-ignition.

We have no doubt that many fires, the causes of which have been reported unknown have originated in the manner above indicated; and it is a matter of no little surprise that our insurance companies and citizens generally, do not pay more attention to the matter, and devise some means, either by spreading more widely the necessary information on the subject, or in some other way seek to avoid the danger referred to. The newspapers of the country by publishing, with comments, the article referred to on page 311, might do much good in this direction.

## Fog Horns and Whistles.

Five steam fog whistles, and two steam fog horns are now being fitted up, at the

## On One of the Causes of Loss of Quick-silver in Amalgamation of Silver.

[Written for the Press.]

The problem of amalgamating silver ores, consists essentially, in every process, in the reduction of the silver from the compound to the simple state, and bringing it, in that condition, in contact with mercury.

The ore, however, finely crushed, remains in the form of particles, of various, but sensible magnitude. These particles may consist, either wholly of silver, or other metal compound, or, partly of that, and partly of earthy matter, quartz, etc.

In some amalgamation processes, other metals besides silver, notably copper and lead, are reduced to a greater or less extent. This applies particularly to iron pans and "base ores." When the reduction of the metal compound, contained in the particle of ore, is partial, and incomplete, a certain quantity of mercury adheres to that particle, by reason of a film of reduced metal on its surface, and causes one or two results: either the particle of imperfectly reduced ore is carried into the mass of amalgam, or, the adhering quicksilver is carried into the tail race. This will depend on the extent of the amalgamated surface.

When unreduced ore is thus carried into the amalgam, it causes trouble in retorting and melting, and accounts for the phenomenon, mentioned by Mr. Küstel in his first book of amalgam, which feels crisp, and appears pure, yet, on retorting, is found to be dirty. In the other case the quicksilver is lost. It may often be detected in the tailings, by washing a portion of them in a pan; a greyish heavy residue is obtained, which by rubbing in the palm of the hand, with clean water, yields a pellet of amalgam, while sand is separated. From the visible we may infer the invisible, and doubtless a great part of the loss is due to this cause.

The loss is greater in working "base ores" than in treating those which are purer. This is because the means used to reduce the silver compounds also reduce copper and lead compounds, but the reduction is never complete, nor, in regard to the base metals, is it desirable that it should be so.

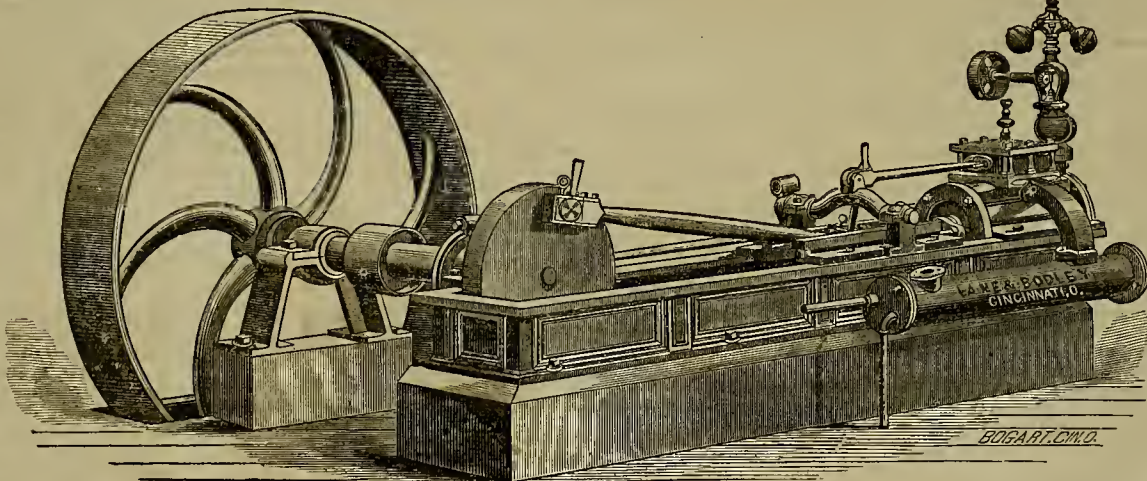
The remedy for this difficulty is indicated by the cause, and consists:

First. In regard to the purer ores; in the more perfect reduction of the silver, better washing of the tailings with plenty of clean water, and the use of concentrators, by which the amalgamated particles may be saved for re-treatment.

Second. In the case of "base ores," whether roasted or not, in addition to the foregoing precaution, in avoiding the use of iron as a reducing agent, and substituting copper therefor.

O. H. A.

MINERS, write for the Press.



STANDARD STATIONARY STEAM ENGINE.

saturated with linseed oil though small and only three pieces, ignite, if thrown together in a room. If so, how many hours might it take and under what conditions?"

In reply, we would refer to an article under the head of "Useful Information," on page 311 of the present issue, which was in print before we received our correspondent's note, and from which it will be perceived that spontaneous combustion, under such circumstances, may take place.

The phenomena connected with spontaneous combustion seem to be pretty well understood, and might be easily prevented if persons entrusted with commodities liable to self-ignition would only carefully attend to their business. The destruction of the Liverpool trader, Red Jacket, of 1,463 tons, on her way from New Zealand with a cargo of wool, at the time drew the marked attention of the English public to the liability of that article, under favorable circumstances to ignite spontaneously. The loss in that instance was some \$1,000,000.

We have thought from the first that the late fire in this city which destroyed the Harpending Block, involving a loss of \$1,000,000, was the result of spontaneous combustion. If we mistake not, the fire was first discovered at a locality in the block where linseed oil and cotton waste

boiler works of McAfee, Spiers & Co., in this city, and will soon be put up at different points along the coast, under the supervision of Col. R. S. Williamson, of the 12th Light House District. The whistles and engines were made in the East, and the boilers are attached here. The whistles will be erected at Point Reyes, Point Arena, Pigeon Point, Point Anno Nueva and Point Concepcion; and both fog horns at Point Bonita. The whistle at Point Reyes, is waiting for the advent of the rainy season, that at Point Arena is almost completed, that on Pigeon Point is already in operation; the machinery for the one at Point Anno Nueva is at the works ready for shipment, and the one for Point Concepcion is already on the ground, and will be erected immediately. These steam whistles are a new invention and are being generally adopted in the United States and Europe. The trumpets of the fog horns, or sirens, to be placed on Point Bonita, are 18 or 20 feet long, and will be heard for miles.

During the number of years which have elapsed since the settlement of this coast by a white population, and the consequent permanence of the shipping interest, only one vessel or steamer, (the Continental) has been lost by "stress of weather." Of the other casualties in this line the majority were caused by the prevalence of fogs, or miscalculation in position when entering this port; consequently these fog horns and whistles will be of great advantages in preventing such accidents hereafter,



## MECHANICAL PROGRESS.

### A Most Important Discovery—if True.

The Portland *Dispatch*, in a late issue, gives the details of a most important discovery, if the statements of that journal can be relied upon. The discovery or invention has been made by Mr. Robert Spear, and consists in a simple device, whereby it is claimed that compressed air can be forced through tubes any required distance without any sensible loss by friction. The importance of such a discovery can scarcely be over-estimated even by an imagination allowed the freest flight. It would bring cheap power to many workshops and households, as gas and water are now brought. Automatic machinery, worked by tidal forces, might supply any city on the sea coast. A waterfall might furnish the whole region about it with a cheap power for workshops.

To the miners of California such a result would be of incalculable importance, in reducing the cost of ventilation by forcing air through tubes, and in conveying power to drilling machines, which must soon be very generally introduced into tunneling operations.

The device whereby it is claimed all this can be effected consists, as described by the *Dispatch*, as follows:—

"The invention consists in the discovery that while in tubes of uniform size, fluids in their passage gradually lose their force and velocity, by making at short intervals peculiar contractions in the pipe, the original power is transmitted without loss—absolutely without loss. By using colored fluids in glass tubes provided with Spear's invention, it is demonstrated that the propelled current is kept in the center of the tube without any friction at the sides.

"If by a diaphragm pierced with holes at the sides, this current is forced to divide and seek passage next the inner surface of the pipe, it at once resumes its course in the center after the obstruction is passed.

"He has also discovered that while any angle or bend in an ordinary pipe obstructs a fluid flowing through, by enlarging the pipe at angles, the friction and loss of power is overcome. At Mont Cenis and at the Hoosac Tunnel it has been found necessary to greatly enlarge the whole conducting pipe for every mile of distance the compressed air has to be forced. This, of course, seriously increased the expense. Mr. Spear's invention greatly reduces the size of conduit necessary for long distances."

To show the practical value of the invention, pipes constructed with his device have been connected with an 8-horse power steam engine, in Portland, by which it is claimed the power is conducted 480 feet much cheaper than steam can be conducted in the ordinary manner—30 pounds initial pressure of air doing the same work that requires 40 pounds steam pressure.

The value of the above alleged invention might easily be tested at almost any locality, where a steam pump or other air compressing machinery can be had. While it is possible that there may be something in it, the claim set up that all friction in the passage of air or water through pipes is thereby overcome, and power transmitted "absolutely without loss," is of course preposterous.

**WROUGHT IRON TIES.**—According to the English scientific journals wrought iron ties are regarded with especial favor by many practical railroad builders of large experience, especially for use in tropical countries. The ties most popular are composed of a number of webs and plates of rolled iron riveted together and pierced with bolt holes for the chairs. The first cost of these ties is found not to exceed the cost of the best wooden ties by more than one shilling each, and this is more than compensated by their greater durability and the saving in the expense of laying them, as compared with wood. They are also considered safer, as enabling the rails to be much more firmly secured than if spiked down to wooden ties. Properly coated they may not only be protected against rust, but they are proof against insects and worms, to the ravages of which wooden ties are much exposed in India and other tropical climates. It is not likely that their use in northern latitudes would be attended with economy at the present time, but the time is not far distant in this country when the supply of wood available for ties will be so far reduced to make their cost nearly, if not quite, as great as that of iron ties, and the experiments now in progress in India have an interest for railroad builders in this country greater than would at first appear.

**ADJUSTABLE CAR AXLES.**—A diversity of one, two or more inches in the gauge of connecting roads of course involves the necessity of breaking bulk, an annoying and expensive operation not unattended with profitless delay. To obviate this, the most obvious means consists in so constructing the truck axles of the cars that the wheels may be readily adjusted at different distances apart. This plan has been tried in a number of instances and abandoned as impracticable. In some cases where the necessity was urgent the gauge of the connecting railroad has been changed, so as to present the desired uniformity. In other cases, at least in Europe if not in the United States, trucks of different gauge, capable of replacement, have been substituted for the adjustable axle.

It is still thought, however, by many good engineers, that the mechanical difficulties which have hitherto rendered adjustable axles impracticable, might, and should be, overcome, inasmuch as such axles certainly afford a much more feasible, cheap, and, in the end, efficient means of accommodating cars to change of gauge than the clumsy resource of interchangeable trucks. If the adjustable axles are not yet what they should be, let them be made so, for the system, properly applied, has too much utility in it to be profitably thrown away. An opportunity is here presented for the profitable exercise of the skill of some of our best inventors.

**A VALUABLE TIMBER FOR PILES.**—THE JARRAH OF AUSTRALIA.—A great deal of discussion has taken place during the last twelve months relative to the durability of the jarrah timber of Western Australia, but until the present time no positive proof has been given to residents in Melbourne of its good qualities. There are, however, at present on view at the Flinders street station of the M. and H. B. Railway Company there, three logs of jarrah timber which have, for the last thirty years, formed a portion of the jetty at Perth, Swan River, Western Australia. They have been drawn by the government and forwarded to Melbourne with a view of exhibiting the capabilities of this wood. The logs are about 20 feet in length, with a diameter of about 12 inches, and, having been sawn down the full length and polished, exhibit the splendid grain of the wood to great advantage. The wood, it appears, is as firm and solid as when first hewn. The grain is close, of a fine dark color, and takes a rich polish.—*Builder.*

**PREVENTION OF CALCAREOUS BOILER INCORUSTATION.**—A very simple mode of preventing boiler incrustation is in general use at Darmstadt Gas Works. The engine has worked night and day since 1854, almost without interruption, and the formation of calcareous deposits has been prevented by the use of crude pyroligneous acid, combined with tar; it is either introduced into the boiler or mixed with the feed water. Since the mixture has been in use they have never had to use a hammer to remove scale. Each year during the summer, when less gas is required, the boiler is opened, and perhaps a couple of handfuls of loose sediment taken from the bottom. The quantity employed is very small—just enough to redden litmus paper; consequently the iron is not attacked, as indeed is apparent from the fact that the boiler has been but twice under repair.—*Gas Light Journal.*

**CAST IRON RAILROADS.**—An interesting experiment has lately been made by the Clyde Navigation Co. in the use of cast, instead of rolled iron for a tramway on the South Quay. The trial is said to have stood the severest tests for over four months, at a locality where the traffic was almost continuous with no signs of displacement or wear or need of repair. So satisfactory has been this experiment that it is said cast iron tramways are to be laid upon all the quays and yards of the Navigation Co. in Glasgow, with a prospect of good results and great economy. Here is an opportunity for American inventors in the street railway line.

**A MAMMOTH STEAMER.**—It is rumored that Daniel Drew and others have entered into arrangements to build a mammoth steamer for the Hudson river, which is to be run between Albany and New York to compete with the palace cars of the Hudson River Railroad. It is intended that the new steamboat shall be 500 feet long! The engine will be 100 inch cylinder and 18 foot stroke, and the steamer capable of making 23 miles per hour, and to average near that speed daily. The steamer will carry no freight, and will be run exclusively for passengers.—*Ex.*

## SCIENTIFIC PROGRESS.

### Vaccination and Disease.

The most experienced vaccinators, on the one hand, and those who have had most to do with the treatment of infantile ailments, on the other, agree in the belief that disease is not communicable by vaccination. Mr. Merson, an English physician, in the performance of more than fifty thousand vaccinations, "has never seen other diseases communicated with the vaccine disease, nor does he believe in the popular reports that they are so communicated." Mr. Lees, whose observations were equally extensive, has borne similar testimony. Dr. W. Jenner, who in six years had some thirteen thousand sick adults and children under observation, states "that in no case had he reason to believe, or even to suspect, that any constitutional taint had been conveyed from one person to another by vaccination." During a period of seventeen years Dr. West treated twenty-six thousand infants and children, with a like experience; and Prof. Paget, after an extensive familiarity with the diseases of children, expresses the opinion that the worst which can be charged upon vaccination is that, by disturbing for a time the general health, it may rarely give opportunity for the external manifestation and complete evolution of some constitutional affection which but for it might have remained rather longer latent.

Where every person in a community has been properly vaccinated, there is little chance for small-pox to obtain a foothold; and it is also very certain that the presence of the unvaccinated is a standing invitation to the development and spread of epidemics. The opponents of vaccination, and a far larger number who from ignorance or carelessness neglect the precaution, thus become, so far as the public health is concerned, a "dangerous class," which like other dangerous classes it is for the interest of the community at large to remove.—*Galaxy.*

**ENCKE'S COMET**, now on its way towards its perihelion, was seen from the observatory of the Sheffield Scientific School, on the evening of Oct. 13th. It was barely observable as a diffuse nebula. It will reach its perihelion on the 29th of December. This comet is principally of interest because its period of revolution has diminished about three days in the past eight years, a fact which is generally accepted as furnishing the best proof of the theory that the regions of space are filled with a material "ether" capable of retarding the motion of the bodies composing the solar system. Of course this resisting medium would produce annual effects upon the comet of a few tons in weight, that would not be experienced by our earth in the course of thousands of ages. But the result, though long deferred, is none the less inevitable—earth, plants and comets will all be eventually precipitated into the sun.

**NEW ASTEROID.**—Within a few months there have been three additions to the large family of minor planets between the orbits of Mars and Jupiter—all discovered by American observers. The first, No. 114, and the second, No. 116, were discovered by Prof. Peters of Hamilton College, the former July 23d and the latter on the 8th of Sept. last. No. 115 was discovered by Prof. Watson of Ann Arbor, Mich., Aug. 6th. The last discovery, Sept. 8th, forms the 116th of these fragmentary planets, (for such they undoubtedly are) all but four of which have been discovered within the last 26 years. Only one of these asteroids (Vesta) is ever visible to the naked eye, and that only under favorable circumstances. "Planetoide" is the title now more generally given to this group of stars, a term much more appropriate to their supposed origin and position among the heavenly bodies.

**A NEW PRODUCT FROM ENGLISH WALNUTS.**—According to Dr. Phipson, the English walnut, (*Juglans regia*), and probably the American species also, contains, among other substances, one which he calls *reganine*, (obtained by treating the green husk of the fruit with benzole,) which appears in the form of a yellowish substance crystallizing in groups of feather-like crystals. These are easily decomposed, and when treated with alkalis or ammonia, yield a splendid and durable red solution which by a subsequent treatment, becomes the jet black, amorphous, pure reganic acid.

**TO FIX DRAWINGS.**—The Marquis de Verrenes has discovered a method, which is equally simple and ingenious, of giving to drawings in pencils and crayons the fixidity of painting, and without injury. He succeeded in obtaining this result by varnishing them on the back with an alcoholic solution of white gum-lac. This solution quickly penetrates the paper, and enters even into the marks of the crayon on the other side. The alcohol rapidly evaporates, so that in an instant all the light dust from the crayons and chalk, which resembles that on the wings of the butterfly, adheres so firmly to the paper, that the drawing may be rubbed and carried about without the least particle being effaced. The following are the accurate proportions of the solution:—10 grammes of common gum-lac are dissolved in 120 grammes of alcohol; the liquid is afterwards bleached with animal charcoal. For the same purpose may be used even the ready-made paint that can be purchased at the color shops, containing a sixth of white lac, and adding two-thirds of rectified spirit of wine. After it has been filtered, there is nothing further to be done than to spread a layer of either of these solutions at the back of the drawing, in order to give them the solidity required.

**SCIENCE IN PRUSSIA.**—Sir Wm. Thompson stated in his recent address before the British Association, that in Prussia every university, every polytechnic academy, every industrial school, most of the grammar schools, in a word nearly all the schools superior in rank to the elementary schools of the common people, are supplied with chemical laboratories and a collection of philosophical instruments and apparatus, access to which is most liberally granted by the directors of those schools to any person qualified for scientific experiments. In consequence there will scarcely be found a town exceeding 5,000 inhabitants that does not offer facilities for scientific investigations at no other cost than that of the materials wasted in the experiments. And further, professors, preceptors, and teachers of secondary schools are engaged on account of their skillfulness in teaching, but professors of universities are never engaged unless they have already proved by their own investigations that they are to be relied upon for the advancement of science.

**ALBUMEN CHARCOAL.**—A preparation called albumen charcoal has been devised for the purpose of clarifying sugar syrups, and for which it is said to answer an excellent purpose, a very small quantity only being required. Its application in clarifying wines has been suggested, although it is not stated whether it is exactly suitable. To prepare this substance, finely powdered and purified animal charcoal is to be mixed to a stiff dough with white of egg, and torn apart into small pieces, dusted with the charcoal, dried, and pulverized, and again kneaded with egg albumen to a dough, which is to be dried and powdered anew.

**COMPLIMENTARY.**—Prof. Chas. A. Young of Dartmouth College, the astronomer who observed and reported the remarkable explosion in the sun, which we published last week, has received a cable telegram from Prof. Lockyer, the eminent English astronomer, inviting him to join the English Eclipse Expedition to India, offering to pay all his expenses, etc. This is a high compliment to our distinguished American astronomer, and it is a matter of regret that important home duties prevent him from accepting the invitation.

**THE FREEZING OF WATER.**—The interesting experiments of Boassingault, showing that water will remain unfrozen down to 18° C. when so confined that the dilatation due to freezing cannot be effected, and to which we alluded last week, was performed simply with a steel gun-barrel into which a steel ball was dropped before filling it with water. During the cold days of December, 1870, the temperature fell to -12° and -18° C., and yet on shaking the tube the ball was found to move freely, showing that the water was not frozen.

**THE CORDOBA OBSERVATORY.**—Further intelligence has been received from Dr. B. A. Gould, who, our readers will recollect, has been recently established in an observatory in the high region of Cordoba, South America, for the purpose of studying the southern stars. The Doctor and assistants have already observed and placed upon the maps 4,500 stars—more than half of which have never before been catalogued. His mission promises to be one of unusual interest and usefulness in the cause of astronomy.



## CORRESPONDENCE.

### Mines in Eastern Nevada.

The recent striking advance in the mineral values of some of the Comstock and Pioche mines has quickened the interest of the public in mining matters in a remarkable degree. To prevent the misdirection of this desirable impulse, a glance at the condition of Eastern Nevada may be serviceable.

No truth can be more securely established, than, that of all human pursuits, mining is the most secure and profitable, always promising adequate skill and competent capital. The merchant, manufacturer and agriculturist depend on the markets and seasons over which they have no control, while the miner with his educated intelligence, can securely predict his results, and with sufficient means can forestall all objects in his path to wealth. The past and current developments in our part of the State, have so far progressed under the indefatigable exertions of prospectors, as to invite securely the aid of capital in benefiting the discoveries made. "Wild cats" no longer infest our districts, preying on unwary travellers, and adventurers can safely traverse our territory in search of locations worthy of investments.

#### White Pine,

on the Axial ridge, that divides the basins of the Colorado and the Humboldt, looks down on either side on lands pregnant with indicated wealth. Eminent not only in position, but in the fertility and diversity of her ores, she yields the chloride smelting and fire-ores. The chlorides of Treasure Hill are illustrated by the Eberhardt and Aurora of limitless value, while White Pine Mountain is now exhibiting fire-ores, that under the Stetefeldt process are unsurpassed by any on the coast. Her smelting ores, are at present in abeyance, waiting the facilities that will be had on the completion of the Hamilton and Elko Railroad. Her near neighbor, Eureka, will partake of the benefits of this railroad by cheapening the transit of the unexampled quantities of bullion there produced. Eureka is reeking with ores peculiarly adapted to smelting, so much so, as to place it ahead of the celebrated Cerro Gordo, that made the first eminent success in that mode of reduction, and is at present unrivalled in the quantity and value of its lead-silver. The late discoveries in

#### The Groom District

(160 miles south) when abetted by the projected railroad facilities, may overshadow her in turn, in her special product, inasmuch as the gigantic vein of galena (120 feet in width) is charged with mineral, bearing silver from \$30 to \$60 per ton, and with aspects that according to the rule of Cerro Gordo, will, as the mine deepens, give at least double as much. This mine, like the other great mines of Eastern Nevada and Utah is in the Dolomitic rocks, with a shale interstratification, quartz, etc., crowning the adjacent heights, the whole intensified by basaltic cones that rear their black peaks in the distance. This mine giving a ton of bullion to two of ore, would seem in its 3,000 feet of length, to be an endless fountain of wealth. Lieut. Wheeler in his explorations of the present season, was so much struck with its magnitude and value as to pause in his journey, to make a critical topographic and mineralogic survey of it, and his report forms in part the basis of the present reference to it. A Hungarian expert, from Cerro Gordo visiting Groom, attracted by the report of its discovery, pronounces it a silver-lead unequalled in Europe or America. The Comet mine in Yellow Pine (the old Potosi) sold recently to English account for one million and a half, is a mine of the same class, and though spoken favorably of by the Hungarian, and Lieut. Wheeler, is ranked by both, as much inferior to the Giant Groom.

The observations of the present season by Lieut. Wheeler have changed his opinion respecting the route of connection between the Central Pacific Railroad and the Colorado river. The road from Elko through Hamilton, and between the Diamond and White Pine mountain ranges, is now deemed most eligible by him, not only for its shorter distance but for its relation to greater mineral values. Margining Ruby, Bald Mountain, White Pine, Grant,

Troy, Freiburg, Tom-pinte Groom and Southeast Districts, it has on the west the Railroad, Diamond, Newark, Pinto, Eureka, Secret and Spring Canons, Hot Creek, Tybo, Belmont, Reveille, Yellow Pine, Clark and New York, all valuable districts and sufficiently explored to justify the immediate application of capital for their complete elaboration, and thereafter ample support for a narrow-gauge railroad. At the present, in the absence of the connecting road, Groom, at 140 miles distance, and the other more southern district, depend for exit on the Colorado, which is not only tolerable, but will admit of a large productive margin on their exports.

#### The Pioche Mines

have such established reputation as to render reference to them unnecessary, save as a type of a large class of relative mines inhabiting the Schell-creek mountain range. Schell Creek, Nevada, Cooper, Patterson and Silver Park will more or less rival Pioche in the abundance of ores and facility of reduction, with superior conveniences in distance and wood and water. In conclusion, investments made with care and skill in this wide range of territory, must necessarily be profitable at present, with a future still more assured.

A. CADWALADER.

#### Mines Near Phillipsburg, M. T.

EDITORS PRESS:—Phillipsburg, located about 25 miles above the mouth of Flint Creek, is one of the old silver camps of Montana, that has the promise of a successful future. In the spring of 1866 a party of prospectors from Idaho, under the leadership of Chas. W. Frost, discovered this camp and organized the

#### Flint Creek Mining District.

The rich specimens exhibited soon caused a stampede, which resulted in building the present town of Phillipsburg, and a population of about 1,500 from every prominent mining camp on the Pacific Coast, soon assembled here. A 10-stamp mill supplied with Wheeler's pans and all the necessary adjuncts of a Washoe mill, was speedily erected and the croppings of the "Hope" run through, which yielded from \$50 to \$100 per ton. The old story of the big fish eating the small fry was here re-enacted, causing a general depression, and the town was left with a corporal's guard to take it in charge, the population scattering in all directions.

A couple of years since, Cole Saunders, of Helena, organized a company and commenced developing the "Poor Man's Joy," "Kitty Clyde," and "Speckled Trout" mines, which resulted in exhibiting rich bodies of base ore. He erected a couple of furnaces which met with poor success, no suitable fluxes being within reasonable distance. Nothing daunted by this failure, the company leased to the "Imperial Silver Mining Co.," under the management of Col. J. J. Lyon, their mines and works, which are now being changed to a dry crushing mill (5 stamps); the ores to be roasted in reverberatory furnaces, chloridized, and amalgamated in barrels. It is believed that this process will meet the requirements in the case and the rich ores of the "Poor Man's Joy," "Salmon," "Speckled Trout," and "Franklin," will be worked up to 80 per cent. of fire assay value.

Should this be done, and it certainly appears possible, the old days of "'66" and "'67" will be revived, and Phillipsburg will become the leading quartz camp of Territory.

#### The Mines

are located in limestone, but appear more permanent than usual in such formations. The Trout and Salmon cut the stratification of the country at right angles, and the vein in the bottom of an 85-foot shaft of the former appears full, strongly indicating the presence of a heavy body of ore. It is claimed that the ores of this mine will assay \$150 per ton in silver on an average. It shows a vein from 6 to 9 feet wide, and has every appearance of being a true fissure. The

#### Eastern Camanches

is a promising mine, and has three shafts averaging 50 feet in depth, each showing ore that it is claimed will mill \$50 per ton by wet crushing. It is probable that the

#### St. Louis

mill will resume operations this winter, crushing as a custom mill, which will dem-

onstrate the value of the "free ores" of this district.

Magnificent bodies of croppings are to be found in many places, and machinery is all that is lacking to give value to the mines. Sixteen miles up the creek, Cahle City is situated, in which is the famous

#### Atlantic Cable

gold mine, which has produced \$200,000 within 18 months, the rock averaging \$30 per ton. The mine is full of water now but will probably furnish quartz to the mill during the present winter. M.

#### SILVER STAR AND IRON ROD DISTRICTS, M. T.

EDS. PRESS:—This is the leading quartz mining district of Madison county, in which is located the celebrated Green-Campbell mine, which is owned and operated by a company of Cleveland capitalists under the name of

The Everett, Green-Campbell Mining Co., incorporated in Ohio, in 1867. As an evidence of their success and prosperity I will state that a 10-stamp mill has been crushing ore from their mine, night and day for over 15 consecutive months, and has in fact run since 1868, with comparatively little stoppage. The lode is worked to a depth of 109 feet, and to this level the operations have been confined for the past year. They are now, however, about to sink their main shaft from said level, and develop the lode thoroughly, which its fine appearance and results fully justify. The vein averages about 8 or 9 feet in width, and in places shows 13 feet of paying quartz. The mine ranks as high as any in the territory. It is located  $2\frac{1}{2}$  miles from Silver Star City; Thos. J. Johns, general manager.

There are many small lodes in the district, which generally look very promising, and are worked on a small scale with success by their owners, but require capital for speedy and large development. New discoveries are constantly made here, some of them quite valuable. The lodes are gold-bearing with few exceptions.

#### The Warm Springs

are not the least of the interesting features of this district, and one which supplies a bath-house well provided and arranged, lending a metropolitan air to the place. The mineral characteristics of these springs are highly commended for their medicinal virtues.

#### The Bedford Lods

is located west of the city, and owned by Ainslee & Tripp. The shaft is down 50 feet; the ore averages 3 ounces per ton. The company own a small 6-stamp mill, which is run by water power.

A small mill is being put up on the east side of the Jefferson, near the bridge, that was removed from Bannock. It is known as

#### The Bullock Quartz Mill.

There is a large pan 14 inches deep and 5 feet in diameter, in which are two wheels 22 inches in diameter. These wheels make 40 revolutions per minute, and the pan makes 20, thereby giving a grinding as well as a crushing motion. The company claim that this is one of the most simple and cheapest mills that can be put up in any new district, and that it will save from 5 to 10 per cent. more gold than any stamp mill process. The average cost of milling will be \$7 per ton, and from 3 to 4 tons can be run through in a day. The machinery is run by water power; the water being taken from a large irrigating ditch, and conveyed to an overshot wheel. Mr. Henry Guyer has run this mill very successfully for some years on Bannock ores. He is a practical mechanic and understands his business as a millman, well.

#### Iron Rod District.

This district is situated on the Jefferson river, four miles from Silver Star, has several quartz mills and many promising lodes. The most prominent of which are the Nugget, Effie May, and the well-known Iron Rod.

#### The Nugget Lods,

owned by Potter & Meagher, is 3 feet wide, the ore from which yields from \$50 to \$60 per ton. The rock shows coarse free gold. A tunnel is in on this lode 350 feet, and the shaft down 50 feet. The Effie May is a very rich four-inch crevice, turning out largely. But a few miles below Iron Rod is a 5-stamp mill owned by the Nugget Co. run by water power, and which crushes about 36 tons a week. Several arastras are running in the district and making good returns. The formation is granite.

W. H. M.

#### A Ditch for Mining and Irrigation.

EDS. PRESS:—Please allow me space in your valuable columns to call the attention of Capitalists and Ditch builders to one of the most valuable locations for a ditch there can be found in the State. I read almost every day accounts in the papers of the great ditch of the upper and west side of the San Joaquin River, which is to pass through one of the most fertile tracts of country, in a wet season, that can be found in the State; but which from natural causes, receives but little rain in dry seasons like the two past; consequently nothing is raised in such a season.

This ditch being built well back to the foothills, with the gradual slope of the land toward the San Joaquin river, will afford opportunity for irrigating a vast extent of excellent land, thereby converting what has ever been, in dry seasons, comparatively a barren waste, into a perfect paradise of vegetation, which the happy descendants of Adam and Eve might well consider a rival to the ancient garden.

There are also two ditches in process of construction at Lagrange, Stanislaus county. One is being built for mining purposes only, at a cost of a quarter of a million dollars. The other, I understand, is both for mining and irrigation. This is all very well; it will develop the resources of the mines and the agricultural lands in that vicinity, and thus revive the business prospects of Lagrange, which has been at a stand still for years, waiting for something of the kind to turn up.

Now, while this is all being done, I am surprised that a more valuable opportunity, in my estimation, on the Stanislaus river, appears to have been entirely overlooked. Let a company with a capital of \$250,000 commence at a point on the north side of said stream, near a place known as Central Ferry, ten miles above Knight's Ferry, where there is a very excellent site for building a dam and starting out with a ditch. A dam and two or three miles of ditch were built there some ten years ago; but the dam, not being well constructed, washed out, and the enterprise was abandoned for want of funds. A substantial dam, however, can be built there for \$8,000 or \$10,000. Thence start a ditch six feet wide on the bottom; run down the river, as far back as possible, about five miles, to near Six Mile Bar, passing O'Brian's Ferry; thence tunnel through Table Mountain, emptying into Littlejohn's creek; from thence you have a natural channel for the water, from which it can be diverted to irrigate that portion of Stanislaus and San Joaquin counties bounded by the north bank of the Stanislaus, Littlejohn's creek, Stockton and the San Joaquin river. Her mining resources would be still more valuable than for irrigation.

As the country from the starting point to Six Mile Bar embraces a large amount of mineral ground, from the creek it could be conveyed to the hills above Knight's Ferry by enlarging Spicer & Son's ditch, or building a new one.

There are on the hills around Knight's Ferry, above the reach of the old San Joaquin ditch, and within three miles of town, not less than 1,000 acres of good mining ground that could be easily reached with water from the contemplated ditch. The company should buy out Spicer & Sons to avail themselves of their privileges of Littlejohn's creek and other ditch franchises. They should also buy out the old San Joaquin ditch, from which water is furnished to the town of Knight's Ferry, and for irrigating innumerable gardens and vineyards in the vicinity, some of which are very extensive.

This ditch would be doubly valuable; for at the season when water was not needed for irrigation it could all be sold for mining purposes. I think it could all be accomplished at an expense not exceeding \$150,000 or \$175,000.

There might be an objection raised to embarking in the scheme—as the ditch would have to pass several miles over lands owned under Spanish Grant title, fearing the owners might charge high prices for right of way. But I know a party who holds the right to build ditches and reservoirs on any portion of the Spanish grant lands. Should this meet the notice of any party wishing to make an investment of this kind, my advice is, come and see for yourselves, as the water is extremely low now, affording an excellent chance for accurate observation.

CAPTAIN.

Knight's Ferry, Oct. 27, 1871.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**RUNNING.**—Alpine Chronicle, Nov. 4th: Exchequer mill on Wednesday commenced work on ore from the mine.

**TARSHISH.**—Alpine Miner, Nov. 4th: A good body of ore was struck this week in this mine, and in adjoining mines on the same lode developments are of a satisfactory character.

**MACHINISTS** are busy putting in the works of the Tarshish mill.

**GLOBE.**—The machinery for the hoisting and pumping works at this mine is being put up.

### AMADOR COUNTY.

**KENNEDY.**—Amedor Dispatch, Nov. 11th: The Kennedy mill is still pounding away and the rock continues to increase in richness as they go down.

### CALAVERAS COUNTY.

**WHAT CHEER.**—Calaveras Chronicle, Nov. 11th: Everything is progressing favorably at the What Cheer mine. The incline 500 feet in length, has reached the bottom of the channel and gravel is being taken from the lead. Judging from the results of numerous "prospects," it will pay well. The gravel is of a dark blue color, a certain indication that the veritable "blue lead," has been struck.

**BRACKETT & Co.** whose claim is on the Tunnel ridge side of Chili Gulch are getting out first-rate gravel.

**CORRAL FLAT.**—Champion & Co., are doing well. Their "clean up," on Saturday netted about \$6 per day to the hand.

**GRAVEL MINING.**—The Bunker Hill Co. are making arrangements to commence mining on a large scale as soon as they shall have a supply of water.

### MONTEREY COUNTY.

**BY TELEGRAPH.**—San Juan South, Nov. 12th:—An exceedingly rich strike has been made in the Cerro Bonito mine. A cut has been run 40 feet, cutting the vein which is 6 feet wide, and exposing one of the finest bodies of ore ever seen, with a foot of vermilion earth covering the ledge in its entire length. Parties are negotiating for the mine for \$200,000.

### NAPA COUNTY.

**QUICKSILVER.**—Vallejo Chronicle, Nov. 6th: The upper part of Napa county in the mountains to the eastward, is being prospected for quicksilver mines, several leads of which have been struck. Some 15 or 20 companies have been incorporated, but none have put up reduction works except the Phoenix in Pope valley. The latter have been retorting out from \$10,000 to \$15,000 worth of quicksilver per month for nearly a year. Sixty men are employed in getting out ores, etc., and during the month 300 flasks of quicksilver were retorted. The "Valley Mine" are using retorts and extracting small quantities of metal. The Phoenix has struck a body of cinnabar of considerable extent, and value their mine at several hundred thousand dollars. The furnaces will cost \$20,000.

### NEVADA COUNTY.

**WILLOW VALLEY.**—G. V. Republican, Nov. 10th: Kitts, Russ & Bradley, have taken out from the Montana ledge 400 tons of rock during the past year, which was crushed at the Oriental mill, and paid from \$20 to \$35 a ton. It was taken from a depth of 112 ft. The owners are making arrangements to erect steam pumping and hoisting works, and sinking the incline 100 ft. more. The pay chute on the Montana is about 400 ft. in length on the ledge. J. Kitts is putting up steam machinery on the Buckeye ledge, at the head of Willow Valley, and will sink a prospecting shaft to the depth of 100 ft. The Buckeye, near the surface, has produced very rich rock. The Murchie Bros. have recently sunk a shaft 100 ft. deep on the Murchie ledge, and taken out good pay rock. The Oriental mill is running night and day on rock from the Orleans ledge.

**GOLD TUNNEL MINE.**—J. H. Helm, has the hoisting and pumping machinery completed, and has commenced sinking a new incline.

**JIM MINE.**—The Jim mine, about 3 miles south from Eureka, is being systematically developed. A tunnel was commenced last spring 1,000 ft. distant and below the old incline shaft. This tunnel has been run into the hill 600 ft., and recently struck the ledge, which is 20 inches thick, and prospects well in free gold and good sulphurets. This winter a drift will be run

on the ledge from the tunnel to the old incline, a distance of 500 ft. This will develop the mine thoroughly, and open an immense quantity of ore, as the "backs" from where the tunnel strikes the ledge are 225 ft. from the surface, and they increase in depth toward the bottom of the old incline, to which point the drift is to be run. At the latter point the ledge will be 275 ft. from the surface. For a period of 9 months, rock near the surface averaged \$20 a ton, and \$1,000 a stamp for each month. On account of the severity of the winter at the mine, the mill will not commence crushing ore before next May or June.

**OMEGA.**—At Omega the principal mining Co.'s are waiting for the rainy season to fill their ditches. During the past summer unusual preparations have been made in placing the best gravel claims in a complete state of readiness for hydraulicing. A large amount of drifting and blasting has been done. Tully & Co. have 2 sets of claims, and will be able to use from 1,500 to 2,000 inches of water; Burwell & Fuller will use from 500 to 700 inches; Kyle about 500 inches; Sale & McSorley also 500 inches. The Omega ditch has been thoroughly cleaned for its entire length, and new flumes, etc., erected. At Diamond creek, Cal Kirtly and others have made extensive preparations for hydraulicing, and are ready to commence as soon as water comes.

**STRIKE.**—A strike has recently been made at Buena Vista Slide. Some excellent prospects were panned from the gravel.

**GREENHORN.**—Gress Valley Union, Nov. 10th: Work on the Greenhorn mine is being vigorously prosecuted. The mill can not be run, because there is no water. The shaft has been put down 106 ft., making the total depth 242 ft. Sinking is going on all the time, and will be prosecuted until the rains come so that the mill can be run, when levels will be opened from the bottom of the shaft. It is thought 256 ft. can be reached in the shaft before drifting becomes necessary. The ledge in the shaft is from 2½ to 3 ft. in thickness and shows well.

**GRAVEL MINES.**—The Altonea Gravel Mine, on Alta Hill, is doing well. A recent run gave \$16 per day to the hand.

The Hope has been doing a good business. A run of 19 days gave 179 ozs. of retorted gold, and the appearances are that the present run will be a better one than the last.

**SOUTH STAR.**—The South Star Mine is being constantly worked. The yield of rock at the last crushing was \$70 to the ton. The ledge is a very large one.

**STRUCK.**—National Gazette, Nov. 10th: Some miners, working near the old Twelve Mile House, have found a very rich prospect.

### PLACER COUNTY.

**RICH STRIKES.**—Auburn Stars and Stripes, Nov. 9th: A deposit of marvelous richness and extent has been struck in the Yule gravel claim a short distance above Lest Chance. It is also reported that an extremely rich development has been made in the Shannon quartz ledge near the North Fork, a short distance below the town. Reports are also highly favorable from the Greene, Crandall, Ophir, St. Patrick, Shipley, Clark and Bellevue claims in Ophir. Dist.

### PLUMAS COUNTY.

**TUNNEL ENTERPRISE.**—O'Neil & Bros. in Newtown are making good headway in their tunnel. They intend to open and work the Nevada claims, and to do this it was necessary to run a tunnel some 350 feet in length. They are now in nearly 300 feet.

### SAN DIEGO COUNTY.

**BULLION.**—San Diego Union, Nov. 2d: The shipment to San Francisco on Tuesday was a little short of \$1,000.

**RAIN AT THE MINES.**—On account of the recent rain, all the mills are at work day and night, with the exception of McMechen & Whitneys. The proprietors of this mill are awaiting the arrival of the engine before they can resume work. "Kentuck" boys had a small lot of ore crushed which yielded \$62.50 per ton.

**MINING NEWS.**—From Julian we learn that the owners of the Golden Chariot mine have struck more rich ore in their lead. It is spoken of as being considerably richer than that which is at present on the dumps of the company, and will go fully \$200 per ton. The McMechen mill finished (previous to stopping) crushing 205 tons of Redman rock which yielded more than any ore previously crushed from this lead. Since the Redmen mine has been opened, 700 tons of its ore have been crushed at an average yield of \$17.50 per ton.

### SIERRA COUNTY.

**PORT WINE.**—Cor. Mt. Messenger, Nov. 4th: The mines here are nearly all paying wages with encouraging prospects. The Indie Queen company whose claims are adjoining those of the Union company's, some time since purchased from the latter a small piece of disputed ground for \$6,300; they are now working the ground and making fine wages. The Union claims are paying very well. Monte Cristo company after running a bed rock tunnel, are taking out the auriferous gravel.

## Nevada.

### COPE DISTRICT.

**MT. CITY.**—Cor. Silver City, Idaho Avalanche, Nov. 4th: The quartz mills are at work constantly, and the mines are paying handsome dividends. Whims, steam-hoisting works, and the latest patent furnaces for roasting ores are being erected.

**LUCIN.**—Cor. Elko Independent, Nov. 11: All the mines look promising. The Tecome has been tapped by a tunnel at a depth of 200 ft., showing an average width of 4 ft. of carbonate and crystallized lead ore of a very high grade.

There are upwards of 100 locations in this dist., many of which bid fair to become good mines. Nearly all the parties owning claims are vigorously prosecuting work.

### EUREKA DISTRICT.

**WASHINGTON.**—Eureka Sentinel, Nov. 10: This property is on Adams Hill, a short distance southeast of the Belmont mine. The shaft is down about 10 ft., disclosing pure and unadulterated milling quartz the entire distance. The vein matter is, on an average, about 6 ft. wide, and from wall to wall this ore is estimated to mill \$40 per ton. At the bottom of the shaft a strata of extraordinarily high grade ore varying in width from 12 to 16 in., has made its appearance.

**PIONEER, No. 2.**—This mine is on Prospect Hill, in the immediate vicinity of the Chattanooga. The main shaft is down 24 ft., and a tunnel, starting a considerable distance below, is in 30 ft. At both points excellent ore has been developed; that found in the shaft going \$150 to the ton, while the average assays from the tunnel are in excess of \$360 per ton. There are from 50 to 60 tons of ore on the dump.

**CHATTANOOGA.**—Recent developments make it certain that this is one of the finest pieces of mining property in the vicinity of Goodwin Cañon. At present the mine has been opened by a shaft, in connection with a tunnel, which measures 50 ft., run on the ledge, all showing a fine body of ore, contained in a well defined vein, traceable the complete distance.

**RICHMOND CONS. M. Co.**—The mines of the Co., comprise the Richmond, Colorado and Virginia, located on Ruby Hill, immediately adjoining the property of the Eureka Cons. Co., on the west. The amount of ore in sight in the Richmond is immense. The bed vein by actual measurement is over 100 ft. in width. There are some 500 ft. of drifts, all hewn through solid ore. Our attention was called to one column of ore over 30 ft. in height, estimated to contain 3,000 tons. The furnace yield for the month of Sept. was \$64.30 per ton. The Smelting works consist of one large-sized blast furnace, capable of reducing 40 tons of ore per day. Foundations have been laid for 2 furnaces, of a larger size than the old one.

**EUREKA.**—Cor. Reese River Reville, Nov. 8th: The Metropolitan mill, will soon be in shape to commence operations. A fine body of high grade ore has just been struck in the tunnel and shaft of the Pioneer Claim No. 2 on Prospect Hill.

### ELY DISTRICT.

**BULLION.**—Pioche Record, Nov. 2d: W. F. & Co. shipped since Oct. 29th, 36 bars valued at \$43,007.57.

**COMPLETED.**—The Statesfeldt furnace, connected with the Chicago mill, at Bullionville, which has been in course of erection for some months past, is now completed and starts to-day.

### HUMBOLDT.

**SHIPPED.**—Unionville Silver State, Nov. 11: Amount of bullion shipped from the Arizona mine, since our last issue, was \$6,051.

**GOOD YIELD.**—Two weeks since 15½ tons of ore were shipped from the Arizona Cons. M. Co. to S. F. which rated at \$510.25 per ton, amounting to \$7,781.40.

**PHENIX.**—The Phoenix mine, Star Dist., is beginning to show very encouraging prospects for a rich mine.

**STRUCK IT RICH.**—In the Arizona Cons. a large body of sulphurets ore was struck in an incline near the south end of their main tunnel equal to anything ever found in the mine.

**MILL STARTED UP.**—In Dun Glen Sprengle & Co.'s quartz mill started yesterday, and all the machinery is working satisfactorily. Paul's dry amalgamation process is a complete success.

**GALENA.**—Cor. same:—It is reported that the Trenton mine, 7 miles west of this town, has been sold to an English Co.

The Little Giant mill, at Battle Mt. will be started up in a few days.

### ESMERALDA DISTRICT.

**AURORA.**—Cor. same: Twenty-three tons of rich rock from Hot Springs, passed through here to-day for reduction. The new mill recently erected there is not progressing very favorably.

### REESE RIVER.

**N. Y. CANON AND YANKEE BLADE.**—Reese River Reville, Nov. 4: A good deal of high grade ore is being taken out of the above named localities, though the number of miners engaged is not very large.

In N. Y. Cañon the principal Co. is that of Kling & Co. They work 6 men and are taking out ore.

In Yankee Blade Cañon, the O'Leary mine is being worked with good prospects.

In Yankee Blade proper, Sennett & Co. are taking out rich ore in small quantity, and Kane & Co. are operating on the Virginia mine from which good ore is being extracted.

**GRAHAM AND JENNINGS TUNNEL.**—This property is proving to be very valuable. The mine is being worked in 3 places and at each point a large ledge of ore is displayed.

The Groves are working one portion of of the mine and have two other sections leased.

Stenton, Calvert, Delano & Lamb, at the farther end of the tunnel, have struck a superb body of ore. Another section of the mine is leased by Gillan, McIntire & McDonald. They have a large ledge of first-class ore in the bottom of the incline, having struck it some time ago.

**SAVAGE.**—A portion of this mine has been leased by Smith & Ramsdell. They are extracting a considerable quantity of fair ore.

**ESTHER.**—The new hoisting works on this mine are now enclosed. The incline is being cleared and re-timbered in splendid shape.

**METACOM MILL.**—The machinery of this mill was put in motion on the 1st inst. for a trial. It will be crushing ore in a few days.

**REVENUE MINE.**—This old claim has been leased for two years.

The lessees have cleared away the rubbish in the old incline, erected a good whim, and inside of 6 weeks commenced taking out a splendid class of chloride and sulphurets ore. The ledge looks first rate, being large and well defined.

### WASHOE.

**BULLION.**—Virginia Enterprise, Nov. 11th: There was shipped from the offices of W. F. & Co., during Oct., 542 bars of silver bullion of the total value of \$867,179 75.

October receipts of bullion from the Hele and Norcross mine footed up \$72,776. This yield last week amounted to 400 tons of ore.

**CHOLLAR-PORTER.**—The ore producing sections of this mine show continued improvement. Last week 1,000 tons were extracted, the average assays of which were \$45 per ton. Total receipts for Oct., \$73,142 71. They are prospecting both to the northward and southward on the Potosi tunnel level, and also at the first station of the new shaft, 200 feet below the mouth of the shaft.

**SAVAGE.**—From 70 to 80 tons of ore per day, milling \$20 per ton, is being taken out. A considerable amount of prospecting work is being done in various parts of the mine. Last week the mine yielded over 600 tons of ore, averaging, as per assay, \$32 16 per ton, or over \$19,000 in bullion.

Sierra Nevada Co. are steadily at work. The mine is yielding an abundance of low grade ore, and the mill is kept in constant operation.

**BELCHER.**—This mine is looking well throughout. The south drift is in 220 ft., and is in fine ore, which assays \$138. The slope on the sill floor is 115 ft. in length and 75 ft. in width, with no east wall found as yet. They have commenced to rise on their third floor. The average of the assays of the mine for the past month have been \$119 37, and average of the pulp assays \$111 67. During the month they extracted 4,589 tons of ore, 4,209 tons of which were milled, and 380 tons of which were carried over. The bullion yield for Oct. was \$310,000. During the present month they expect to extract 250 tons per day, and think the yield in bullion will amount to about \$400,000. The following







### Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

**IMPROVED WARDROBE.**—Anna Davis, Reno, Nev. The object of this invention is to provide an improved portable wardrobe for clothes, etc., and it consists in a light frame-work oblong and rounded at its ends, and arranged with hinges so as to be opened and closed. A sort of hook and stout eye are fixed, one to a supporting bracket of peculiar construction, and the other to the top of the frame, and by these the wardrobe can be supported from any wall or point desired. The frame-work is covered with cloth, leather, or any suitable material, and the whole can be taken in pieces so as to pack for transportation.

**GANG PLOW.**—J. M. Huie and Elisha Card, San Francisco, Cal. This invention relates to certain improvements in gang plows, by which the labor of raising the gang from the ground is performed by the team instead of the driver, and it consists mainly in constructing the supporting frame of the plows so as to slide on two inclined planes suitably attached. A rod extends forward from the cross-bar, which slides on these planes and passes beneath the pole, and is so arranged that when the holding lever is released from its rack, the draft will act directly to raise the plows by sliding the bar up the inclined planes.

**WHEELBARROW.**—Wm. McKibben, San Francisco, Cal. The object of this invention is to provide a wheelbarrow which shall combine lightness, strength and cheapness of construction, and it consists in forming the sides and cross-bars of bar iron set on edge and peculiarly curved at the wheel end so that the wheel is set well under the box and load. This latter condition is also favored by the peculiar construction and setting of the box. The wheel is also of novel construction and is light, strong and easily made.

**GRAPE CRUSHER.**—Schoenstein & Klein, San Francisco, Cal. This invention relates to an improved machine for crushing grapes and other small fruit and removing the stems before pressing. It consists of a proper shaped box inside which is a cylinder provided with teeth. This cylinder is revolved inside a wire cloth concave which is also provided with teeth at each side. The bottom of the hopper into which the grapes and their stems are thrown is formed of bars similar to a grate, and the teeth of the cylinder pass between the bars and draw the grapes and stems down into the concave. After passing through the concave the stems are caught on an outside shaft and drawn to the outside upon an apron from which they fall to the ground, while the crushed grapes fall between the concave and box and thence to the bottom of the box, where they are passed between the pressing rollers.

**ENGLISH PATENT LAW.**—The movement already mentioned in the Press for improved patent laws in England contemplates the following provisions:—

That inventors have a right to the sole use of their inventions, which it is the duty of legislature to harmonize with the interests of the State.

That patents should no longer be granted to mere "first importers," but should be confined to actual inventors.

That the term of a patent should be twenty-one years—now fourteen—without provision of extension.

That the official fees should be reduced from one hundred and seventy-five to ten pounds for the entire term, which is sufficient to defray the expenses of an efficient patent system.

That the French mode of granting patents—without official investigation of the merits of the application—should be adopted.

That in patent suits the rights of patentees should be determined by a competent court of equity, dispensing with *jurors* and "expert" witnesses.

### Utilizing the Mountains.

During the past summer, says the Sacramento Union, hundreds of thousands of sheep were grazed upon the high Sierras, at altitudes ranging from 4,000 to 8,000 feet above sea level. At the heads of all our rivers there are broad meadow lands, covered with a rank growth of grass from the month of July until the coming of the first snows of autumn, and watered by innumerable lakes and ponds. It is this region which supplies our best sheep pastures. Its extent is hardly yet known, but we may safely say there are several million acres of such meadows open to pasturage for four and a half to five months in the year, and at altitudes no higher than 4,000 feet for eight months. There is room in that region for twenty million sheep, or five times as many as we now have in all the State. It costs nothing but the driving and herding to make these splendid pastures available.

In Spain the great flocks of sheep are driven slowly along the Pyrenees in one direction during the opening of the season, and back again over the same ground toward the close of it. Here our sheep farmers are gradually falling into a like system. During the months of early spring the southern slopes of the lower foothills afford good pasturage, and on these hundreds of thousands of sheep are grazing from February to the middle of April, without reaching an altitude of 2,000 feet. From the middle of April to June they are driven by slow stages up into the great and open timber regions, on a line parallel with the Calaveras big trees and the sources of such second-class streams as Weber Creek, the San Antonio, Mariposa creek, etc. About the close of June the snow has pretty well disappeared on the mountains not above 6,000 to 8,000 feet, and it is at such altitudes, upon the mountain meadows, where the great lateral branches of the Sacramento and San Joaquin—as the American, Cosumnes, Yuba, Feather, Kings and Kern—take their rise.

When the sheep reach these meadows they are stopped for several months, and it is found that they fatten very rapidly and improve in health as long as they remain. There are in fact, no better pastures in the world for sheep, and everywhere the best of water, clear as the Lethe of Dante and cold as ice, abounds. The timber of this region is chiefly hackmatack, dwarf cedar and spruce. The climate is always cold to a valley resident, and the nights always bring frost. Wild animals, enemies of the sheep, are not numerous. The grizzly bear is the most formidable, and next the puma and large gray wolf. Coyotes never go so high up. Between the two "summits," as we have named the two distinct ranges of the Sierra Nevada, and beyond these meadow lands, is a system of larger lakes, each having a valley of greater or less size, and beyond the eastern summit, is another system of still larger lakes and valleys, among which are Goose lake, Honey and Pyramid, in the north, and Owen's lake and valley, and Walker lake and valley in the south. These last are generally not above 4,000 to 5,000 feet above sea level, and constitute the best grass farming districts on the coast south of Oregon. The lakes and valleys between the two "summits," among which are lakes Tahoe and Silver, and Yosemite valley, are not so large as those east of the eastern summit, but the lakes are deeper. The climate in these is severe in the winter and cold in the summer; but the limited pastures are the best in the world for dairy farming. During the past summer, we learn, there has been a good deal done in this business, and very many of these small valleys have been occupied by herds of cows driven up from the Sacramento and San Joaquin valleys, where there has been no grass at all. Hermit valley, at the head of the Mokelumne, on the Big Tree and Silver Mountain road, containing about 200 acres of level land, has all summer, since the 1st of July, produced an average of 100 pounds of butter daily, besides cheese. Hope valley, and the valley of Silver Lake, have in like manner been utilized. It is probable that as new explorations develop new valleys in these Alpine districts, there will be a system of dairy farming organized on a grand scale; and so, what with sheep-ranching and the timber business, there is a good prospect that in a few years the high Sierras will be settled with a more thriving population than now inhabit the old belt of the placer mines.

MANY outrages are reported from Provo, Utah, growing out of difficulties among mining companies. Witnesses are assaulted and beaten, and obnoxious men are shot at by the partisans of the various mines.

### California Experience in Chicken Raising.

**EDS. PRESS:**—For nineteen years I have been watching the successes and failures in hatching and rearing chickens on this coast, and I have a few items which I propose to offer your readers.

#### Hatching.

If you wish to hatch eggs on a large scale, and feel willing to watch them closely day and night three weeks, then hatch by artificial heat. But first send to the office of the PACIFIC RURAL PRESS and obtain "The Peoples Practical Poultry Book," study it and talk with intelligent and experienced men. Do not listen to the thousand whims in everybody's mouth; but follow the directions of your book exactly to the moment of time and the degree of heat, by not observing which nearly all that try it fail. You may hatch out a thousand eggs at one time, more or less, and your chickens will be less trouble and more healthy than if hatched by hens, and entirely free from vermin.

After your eggs have been warm four or five days, you may select those that will not hatch. Hold them one at a time between your eye and a candle, and send to market all that look perfectly clear, retaining only those that have become clouded.

#### Producing Eggs—Does it Pay?

That you must decide in the light of the following facts:—A hen is supposed to eat about 60 lbs. per year. At present prices it will cost \$1.50. If she lays 60 eggs, and you get, on an average, 35 cts. per dozen you will make just 25 cts. on each hen. But when you reckon the expense of roosters and the losses by disease, vermin and thieves, you cannot hope to do nearly so well as the above estimate. Some do much better, but many much worse, owing to the difference in the breeds of chickens and the cost of feed.

Some hens will lay 80 and 100 eggs during the year; while others will not lay 20. Some persons are now feeding boiled potatoes, at from \$5 to \$10 per ton; raw onions, at \$7.50 per ton; fresh meat at 3 cents per lb.; scraps, after the lard is pressed out, at 1½ cts. per lb., and grain at a reduced price. Then they always sell their hens after they have laid two years. By all this economy they hope the income from the eggs will be more than the expense of the hens.

#### Diseases.

After watching the poultry stalls in San Francisco for several years, I conclude that most people get rid of their sick chickens by rushing them into market. Please make your own comments. If you hope to keep your chickens healthy do not buy a few diseased ones and mix them with your healthy ones, as many are now doing; for their diseases are exceedingly contagious. Give them exercise by placing their grain where they must scratch for it. Give them fresh air by permitting them to roost on trees or in open houses during the warm weather. Give them a variety of food—corn, wheat, barley, oats, broom-corn seed, rice, potatoes, onions, bran, shorts, red pepper, meat free from salt and every thing else they like. If they cannot find worms for themselves mix fresh meat and wheat bran together, and in a few days you will have a good supply for them.

If you have no green grass for them, moisten a lot of grain and let it sprout and thus you will have a good substitute. If you have not a good supply of running water, drive sticks at the side of the trough slanting across it so that they cannot get their feed into it, or nail the sticks to the side of the trough and thus keep the water clean and fresh.

J. PETTIT.

Oakland, Oct. 24th, 1871.

**SHIP BUILDING IN ENGLAND.**—It is reported on good authority that there are no less than 5,000 vessels, of various grades, now in process of construction in Great Britain. The larger number are being built of iron, among which steamers preponderate. A very large proportion are being built with special reference for making the voyage to India via the Suez Canal. The English are determined to leave no effort untaken to keep their hold on the vast carrying trade of India and China. California and the Pacific Railroad will have to be up and doing if they would divide this business with our cousins over the water.

### Dangers of Coal Mining.

The coal miner, the veteran of the mineral world, whose origin dates back many years in the world's history, is more subject to danger, day after day, than perhaps men of any other calling. He struggles against the multifarious dangers of the mine, and combats, hand to hand, the elements of the ancients—earth, air, fire and water—all of which are in conspiracy against him. The air, by becoming mixed with explosive vapors; fire, in blasting, in the firing of the coal and in explosions of fire damp; the earth, in caves; the water, by inundations. All these are to be opposed by the intrepid courage and practical science which tend to make the skilled miner.

Fire is the most terrible enemy which the collier has to contend with, especially when caused by "fire damp"—a combination of hydrogen and carbon—which, when mixed with atmospheric air, becomes explosive. In this state it often causes fearful destruction—burning, overthrowing, destroying and killing everything in its path. The men are blinded and scorched, and the effects are the same over every part of the mine where the explosive gas is present. Sometimes the walls and roofs cave, and, to add to the horrors of the situation, carbonic acid gas, after the explosion, spreads through the mine, and those whom the work of destruction has not already killed, generally terminate their existence by suffocation. An old miner who has experienced one of these fearful explosions, and who fortunately came off safely, thus describes his situation and feelings:

"As soon as the explosion occurs it drives like a whirlwind and with force enough to carry any weight before it in the direction of the nearest vent. In going it sweeps along the ceiling, tearing away props, brattices and everything else, even the pillars of coal. The unfortunate miner who may be within its influence, instinctively throws himself flat upon the ground. Before he can rise the gas has encountered the body of air moving in an opposite direction. They come together with an elastic shock, sufficient to change the direction of the gaseous tornado, and back it comes with a rush, lifting the miner and flinging him probably a distance of 50 feet against the ragged coal. Behind again there is a shock of pure air and foul, and again the gas whirls back with undiminished fury, lifting the miner once more and dashing him back whence he originally came. Again and again this terrible game of battledore is repeated. Nothing can resist its impetuosity. Meanwhile the terrible after-damp accumulates with surprising rapidity. This is composed of the black damp which hangs from the roof and the white damp which gathers along the floor. It joins the gas at every rush, and adds power and volume to it. The helpless miner struggles with superhuman strength to resist the buffeting of the mine-flood, but now the damp begins to seize upon his senses. The sensation is not unpleasant. He feels slight dizziness; he becomes weak and sleepy; he staggers; his knees lose all their power and he falls."

**MOSS AGATES.**—A large deposit of moss agates has been found on the banks of the Chitika and on Willow Creek, some twenty miles from Portland, Oregon. The discovery will not prove of any especial value however, as the market for these stones is already oversupplied from the deposits in Wyoming and Montana Territories.

TIME is the earth's attribute, and as the earth leisurely and regularly renews her drapery of foliage and flowers, so she reconstitutes the forms of her surface and moves her continents and seas from place to place in the long lapse of ages, to which the life of man is but as one undulation separated from the myriads of luminous waves which are required to impress us with a sense of solar force.

LONDON papers announce the death of Mr. Thomas Pilgrim, aged 71 years. Mr. Pilgrim acted as chief engineer of the Archimedes, the first ship ever sent to sea propelled by the screw.



## USEFUL INFORMATION.

## Spontaneous Combustion.

In March last, a well-known Detroit chemist, assisted by two seriously inclined and science-loving gentlemen, resolved to make a number of experiments to test the worth of the talk about spontaneous combustion, and their experiments are well worth the attention of every reader.

They first took a piece of cotton cloth, which had once formed a part of a sheet, and which had been used until quite threadbare, and smeared it with boiled linseed oil. An old chest was placed in the loft of a store-room back of the drug store, a piece of zinc over it, another paper under it, and then the chest filled with paper and rags, and this particular piece of cloth placed in the center. Although the room was not a light one, and the weather cold, in eight days there was such a smell of fire about the trunk, and the chances were so good for a conflagration within it, that the contents were emptied.

An examination showed that the fibre of the oil-cloth had untwisted and shriveled up, and that the rag looked as if it had been held too near a hot blaze. In April, when the rays of the sun were stronger, a pair of painter's overalls, literally covered with paint and oil, were rolled up, a handful of pine shavings placed inside, and these were crowded in next to the roof boards of the loft. The experiment was not a week old when, during one warm afternoon, a smell of smoke alarmed a workman in the next room, and he found the overalls burning, and so tinder-like was the cloth that it had to be crowded into a pail of water to prevent total destruction.

During the hot weather of August, a handful of old cotton rags, in which two matches were placed, but which were not smeared with oil or other matter, were shut up in a tin box, and hung up in the loft, a rear window allowing the afternoon sun to shine directly on the box for several hours. Toward the close of the fourth day the chemist took down the box to see how the experiment was progressing, and found the contents to consist of nothing but a puff of black cinders, which flew all over him as the lid was lifted. Having a vacant corner in his brick wood-house at home, the chemist took the trunk up there, where there was no danger of burning a building. He filled the trunk with the contents of the paper rag-bag, and then smeared one with benzine and threw it in last of all. The trunk was shut tight, everything cleared away from its vicinity, and he commenced watching. One day the family came home to find a few ashes marking the place where the trunk stood, while the bricks above and around were badly stained with smoke.

**ARTIFICIAL RAIN.**—In England, where experimental agriculture is carried to an extreme almost unknown with us, the inventions of methods of irrigation have been very ingenious. At Stoke Park a tract of twenty acres is irrigated by artificial rain, the system being quite successful. The water was applied every night last summer in showers, excepting when natural rain made it unnecessary. The apparatus consists of pipes laid in the ground, supplied from the elevated reservoir, into which water was pumped by machinery. The financial exhibit made by the results of the experiment is said to be a good one. The interest on the money invested in the necessary machinery, and the cost of operating it, aggregated \$95 per acre for the entire tract of twenty acres. Likewise the income per acre aggregated \$200, being made up of the proceeds of one crop of grass and grazing in the autumn of 1870, and two crops of hay in 1871. The net profit was thus \$105 per acre. On land of the same tract and same character, used for the same purpose, but where the irrigation was omitted, the net profit per acre was but \$45.

The active principles of many plants are found to be more concentrated under the slower growth of cold regions, where the vegetation is less luxuriant than in warm climates; thus tobacco grown at the North is stronger than that raised at the South, and the same is said to be true of celery.

Mr. A. R. WALLACE, who lived for years in the East Indies, says that the popular notions of the gorgeousness of tropical vegetation are incorrect; flowers being less effective in lending color to the landscape than in temperate climates, since they are fewer in proportion to the mass of mere foliage.

## Paper Clothing.

The uses to which paper is applied are constantly multiplying, until it is now made serviceable in nearly every department of manufacturing industry. The paper collar was considered an ingenious novelty when it first appeared, closely followed by cuffs, frills, etc., of the same material; but the attempt to apply the same principle to the production of other articles of raiment was for a long time unsuccessful. An English inventor has at length, it is said, surmounted the difficulties of the case, having produced a fabric from which all sorts of clothing for the person and for beds, as well as numerous articles employed in furnishing an apartment, can be made at small expense and of a very durable character. The paper thus used is made from a pulp composed of wool, silk, hemp, cotton, flax and jute, which is subjected to bleaching and felting, and a fabric thus obtained on which a strong seam can be made with the same facility as upon the cloth. Shirts, skirts, pantaloons, talcloths, blankets, etc., are made of this material, possessing such toughness and flexibility as scarcely to be distinguished from linen or cotton cloth. The process is new to the European and American markets, but a similar art has been long in use in China and Japan, where a paper coat which will stand a reasonable amount of wear can be bought for ten cents, and a whole suit for twenty-five cents.

## Wooden Nails.

In these days of millions of iron, copper and zinc nails, tacks and brads; of lightning, self-feeding, and almost automatic nail machines, it is wonderful to find wooden nails coming into use. Yet that such is the fact, the *Shoe and Leather Reporter* informs us. Wooden pegs, made by the same machines as shoe pegs, are now largely used for fastening boxes, and manufacturers receive large orders from the West, for inch pegs for this purpose. In China, Japan and Hindostan, pegs of bamboo have been always used in fastening tea chests and other wooden packages. In this age, however, it looks like retrogression to use wood for purposes for which iron seems so much better adapted. As one of the curious freaks of the habit, so inherent in human nature, to return to former customs under the impression that they are novelties, the above is noteworthy, but we do not anticipate a fall in cut nails from this cause.

**PATNA KIPS.**—The uninitiated may thank the *Shoe and Leather Reporter* for the following definition of the term "Patna Kips," so often seen in trade quotations: "Patna kip is the hide of a two-year old steer or heifer, and is supposed to be anything in the shape of a hide weighing less than 16 lbs., the average weight being about 10 lbs. When properly tanned and dressed, these hides make fine leather, ranking next to calfskin. A patna kip hide, as a general rule, comes to market salted. These hides are shipped to his country at Calcutta, and are the produce of the Province of Bahar, in Hindostan. Their distinguishing marks are difficult to give, but experts readily recognize them. The dead green is the hide taken from the carcass after it has died on the plain. The difference in price between the slaughtered Patna and the 'dead green' is about 21 cents per lb."

Some recent experiments at the Philadelphia High School developed the fact that when a strong solution of phosphorus in bisulphide of carbon is poured upon finely powdered chlorate of potassa, resting on paper, and the mixture is exposed to air, upon the evaporation of the bisulphide of carbon, the phosphorus being left in a very finely divided state, intimately mixed with the chlorate of potassa, the mixture presently explodes spontaneously, with a loud detonation.

**GOBELIN TAPESTRIES.—DELICACY OF THE EYE-SIGHT.**—The various colored wools used in making the celebrated Gobelin tapestries are arranged at the manufactory according to their shades. These shades are 28,000 in number; and, as an example of the power and delicacy of human eye-sight, it is said when two of the approximate shades are compared, the eye distinguishes them with facility, and perceives the interval which separates them.

A PAPER ON Ancient Dentistry, presented to one of the scientific associations not long ago, showed that gold was used by the Romans for filling teeth, and for holding artificial teeth, five hundred years before the Christian era.

## GOOD HEALTH.

## Medical Philosophy.

It is a matter of regret, says a correspondent of the *Boston Journal of Chemistry*, that in the regular profession of medicine there is no system of medical philosophy. We have a vast accumulation of facts, the result of the most careful and scientific observation and experiment, and a certain amount of deduction as the result of investigation, but no comprehensive philosophy, to govern the physician in his treatment of disease.

It is believed that medical art has kept pace with other improvements, for which this century is so remarkable, and what is to be the progress in the future no one can predict; but no one can doubt that it will make even greater advances than in the past.

The want of a comprehensive medical philosophy to which I have alluded, may not be recognized by a physician already established, but to the young man just commencing practice the want of such a guide must be keenly felt.

The homeopath has a simple philosophy in the words *Similia similibus curantur*, and while it captivates many intelligent people, a large majority of physicians do not believe it to be true, and are incredulous as to the capability of matter to be subdivided to the extent claimed by their practice.

If the medical profession are ever to have a medical philosophy which is true, it must be the legitimate deduction from facts, and with a view to take the first step in the desired direction, you will permit me to announce a single principle by which I have been governed during a somewhat extensive practice.

It is well known by physicians that the human body is composed of quite a number of substances, such as albumen, globuline, fibrine, caseine, and keratine, among the proteine compounds; gelatine, chondrine, fatty matter,—organic acids and inorganic acids, etc.; till we come to the metallic bases: potash, soda, ammonia, magnesia, iron and manganese. Now in medical practice I never give, under any circumstances, any mineral either in the form of a salt, or a compound that does not enter into the human organization, as it would become a foreign substance incapable of assimilation, and therefore poisonous to that extent—or at least a foreign body. On administering an organic substance, or any of the minerals which constitute a part of the human system, there is a provision to discard or eliminate what is not wanted—if in excess of requirements.

But if you give lead or mercury, copper or silver, zinc or tin, there is in nature no arrangement to eliminate it from the system.

Physicians deplore lead or zinc poisoning; why then should they give the salts of either to produce a temporary action, regardless of subsequent effects? Every conceivable drug has been recommended for every known disease, but if the physician would adopt the simple rule I have indicated, he would have the satisfaction of feeling that he had at least done no harm to his patients that would return at some future time to torment him.

J. H. STEARNS, M. D.

Augusta, Maine.

**BROMIDE OF POTASSIUM IN TAPE-WORM.**—An interesting case of tape-worm is reported in the *Buffalo Medical Journal* as being cured, after all the ordinary remedies had been employed ineffectually, by taking bromide of potassium, in twenty-grain doses, every four hours. After continuing the bromide for three days, and taking half an ounce of the spirits of turpentine, and soon afterwards two ounces of castor-oil, a perfect cure was effected. Two hundred feet were passed from the first medicine, and in a few weeks afterward, after repeating this treatment, fifty feet more were passed, at which time the head was voided. Since that time the patient has rapidly improved in health, and has not been troubled with parasites.

**TURPENTINE IN HEADACHE.**—Dr. Warburton Begbie (*Edinburgh Medical Journal*) advocates the use of turpentine in the severe headache to which nervous and hysterical women are subject. "There is, moreover," he says, "another class of sufferers from headache, and this is composed of both sexes, who may be relieved by turpentine. I refer to the frontal headache, which is most apt to occur after prolonged mental effort, but may likewise be induced by unduly-sustained physical exertion,—what may be styled the headache of a fatigued brain. A cup of very strong tea often relieves this form of headache;

but this remedy, with not a few, is perilous, for, bringing relief to pain, it may produce general restlessness and—worst of all—banish sleep. Turpentine, in doses of twenty or thirty minims, given at intervals of an hour or two, will not only remove the headache, but produce in a wonderful manner, that soothing influence to which reference has already been made."

**HASTE AND HEALTH.**—It is not at all wholesome to be in a hurry. Locomotives have been reported to have moved a mile in a minute for short distances. But locomotives have often come to grief by such great rapidity. Multitudes in their haste to get rich are ruined every year. The men who do things maturely, slowly, deliberately, are the men who oftenest succeed in life. People who are habitually in a hurry generally have to do things twice over. The tortoise heat the hare at last. Slow men seldom knock their brains out against a post. Foot-races are injurious to health, as are all forms of competitive exercises; steady labor in the field is the best gymnasium in the world.

Either labor or exercise carried to exhaustion, or prostration, or even to great tiredness, expressed by "fagged out," always does more harm than the previous exercise has done good. All running-up stairs, running to catch up with a vehicle or ferry-boat, are extremely injurious to every age, and sex, and condition of life. It ought to be the most pressing necessity which should induce a person over fifty to run twenty yards. Those live longest who are deliberate, whose actions are measured, who never embark in any enterprise without "sleeping over it," and who perform all the every-day acts of life with calmness. Quakers are a proverbially calm, quiet people, and Quakers are a thrifty folk, the world over.—Dr. Hall.

**CUNDURANGO.**—The Chicago *Pharmacist* gets after the new cancer remedy as follows: It can hardly fail to cause the heart of the American pharmacist to bound for joy to know that Dr. Bliss, from blissful Washington, has announced the blissful intelligence that a cargo of Cundurango has arrived in New York, which will be furnished to the profession at the highest possible prices. "See, the conquering hero comes!" The very name Cundurango has a high and mighty conquering sound—sweetly blended of High Spanish, Guinea Nigger, Fiji, and Whang Doodle. Dr. B. has taken steps to Helmholdize the drug at once. We will soon see it marching on across the Continent, side by side with the other heroic names which, by the magic of paint and cheap blacking, blazoned on every bridge, fence and crag, from the Atlantic to the Pacific, have been stencilled upon the great American heart.

**COLORED CANDIES.**—Some months since a great variety of the candies sold in New York were analyzed by Dr. Endeman, Assistant Chemist to the Health Department of that city, and reported in the *American Chemist*. Reds were either carmine or aniline-red (both harmless). Blues were either niltramarine or Prussian blue (also harmless). Yellows were either saffron, chromate of lime, chromate of baryta, chromate of lead, gamboge, or vegetable colors. Of ten samples five were colored with chromate of lead, and one with gamboge, both poisonous. Greens were harmless, so far as examined. Starch sugar is a common constituent of some kinds of candy, and starch is often substituted for gum arabic. In two cases gypsum was found, 3 and 6 per cent.; no other inorganic adulterations were detected.

**THE SEWING MACHINE AND HEALTH.**—Dr. E. Decaisne has reported to the French Academy of Medicine, as the result of his observations upon 661 operators upon sewing machines, that the injurious effects from using this machine are in nowise greater than are produced by any other muscular effort—only injurious when excessive. The machines with uniform pedals, however, are considered preferable to those alternating. He says that when women use sewing machines within reasonable limits, they are no more injurious than sewing with the needle. In twenty-eight women, between eighteen and forty years, working three or four hours a day, he could discover no ill effects attributable to their labor.

A concise list of "infallible remedies" is given as follows: "For coras, easy shoes; for hile, exercise; for rheumatism, new flannel and patience; for gout, toast and water; and for the toothache, a dentist."



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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### San Francisco:

Saturday Morning, Nov. 18, 1871.

### Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Nov. 15, 1871.—Legal Tenders buying 89½; selling, 90. Gold in New York to-day, 111½.

### Table of Contents.

Standard Stationary Steam Engine—III.; Fog Whistle; Spontaneous Combustion; Loss of Quicksilver.....	305
MECHANICAL PROGRESS.—A Most Important Discovery—If True; Adjustable Car Axles; A Valuable Timber for Piles; Cast Iron Railroads, etc.....	306
SCIENTIFIC PROGRESS.—Vaccination and Disease; Encke's Comet; New Asteroid; To Fix Drawings; Science in Prussia; Albumen Charcoal, etc.....	306
Mines in Eastern Nevada; Mines Near Phillipsburg, M. T.; Silver Star and Iron Rod Districts, M. T.; A Ditch for Mining and Irrigation.....	307
MINING SUMMARY.—Stock & Exchange Board; Market Report.....	308-9
Notices of Recent Patents; Utilizing the Mountains; California Experience in Chicken Raising; Dangers of Coal Mining; English Patent Law.....	310
USEFUL INFORMATION.—Spontaneous Combustion; Paper Clothing; Wooden Nails; Patna Kips, etc.....	311
GOOD HEALTH.—Medical Philosophy; Haste and Health; Cundurango; Colored Candies; Turpentine in Headache, etc.....	311
Our Home Industries; Contributions to Our Cabinet; Mining Discoveries; Annual Report Eureka M. Co.....	312
Miners' and Metallurgists' Companion; Dutton's Improved Harrow—III.; Mining Accidents; New Incorporations; The Water Question.....	313
DOMESTIC ECONOMY; DOMESTIC RECEIPTS; MECHANICAL HINTS; LIFE THOUGHTS.....	314

### Recent Mining Discoveries.

A very superior article of fire-proof clay has been discovered at the base of Ruby Hill, Enreka, Nevada, and will be valuable in building smelting furnaces.

Ledges of gold bearing quartz have been discovered in the mountains east of Visalia.

Rich gold diggings have been struck on the north fork of Thompson's river, British Columbia.

Silver mines have been found east of Ogden, and are said to contain rich argentiferous galena.

Gold mines have been discovered on Rogne River, Oregon, below the mouth of Applegate.

A gold bearing quartz vein has been struck at Tamaroo Bar on the north fork of the American River.

Gold is reported to have been found at Lake Shehandawan in Canada, north of Lake Superior.

**THE WEATHER.—RAIN-FALL.**—A light rain commenced falling in this city on Tuesday evening last, which shortly after changed to quite a copious shower, and continued at intervals throughout the next day. A little over one-third of an inch fell, making six-tenths of an inch in all to the present time, for the season—about equalling the quantity of last year up to this time. The rain was general throughout the State, north of Los Angeles, where, up to Thursday morning, none had fallen, although the indications were then favorable.

### OUR HOME INDUSTRIES.

The foundries in this city are at present unusually busy, turning out mining and milling machinery, gae and water pipe, railroad wheels, and castings for sugar plantations.

#### The Miners' Foundry

are filling large orders for mining machinery throughout California and Nevada, and are making castings for the State Capitol. They have just shipped the iron work for a sawmill on Puget Sound, and have finished an iron tramway, three miles long, for the Arizona mine, at Unionville, Nevada, owned by John C. Fall & Co. The cars on this tramway are carried by an iron wire, and are to convey ore from the mine to the mill. They have also just completed some hydraulic machinery for the Gwin mine in Calaveras. They are engaged in manufacturing water monitors, or distributors, which weigh 1,600 pounds and sustain a pressure of 450 pounds. There is a 13-inch inlet, and five 8-inch outlets, the gates of which are raised by hand wheels and screws. These distributors are in use at Gold Run, San Juan, and by the Dutch Flat Mining Co. They are also making two 25-horse power engines, car-wheels for mining tramways, and machinery for mines in Utah.

#### The Etma Foundry

are constructing machinery for sawing marble, at the fine quarry recently discovered near Colfax, and are fitting up a 16x30 inch steam engine and machinery, for a new cooper shop, which is being built on Brennan street, to take the place of the one lately burned down at the Potrero. They are making an iron front for the Santa Rosa bank at Santa Rosa; and are building a large traveling-crane, with engine attached, to be used in the construction of the new City Hall, in this city. They have just completed a steam-pump, of the capacity of 12,000 gallons per hour, for the Giant Powder Works. They are also doing iron work upon the U. S. Steamer California, and other vessels.

#### The Fulton Foundry

is engaged upon shafting and pulleys, for driving machinery from Scotland, for the the Oakland Cotton Manufacturing Co. They have just forwarded a narrow-gauge steam-engine to the Newport Coal mine, at Coos Bay, and another to Seattle, on Puget Sound. They are also making large retorts for the California Borax Co., at Clear Lake, and are constructing a helix, for a sugar refinery in Central America, and rolls and gears for a sugar mill, to be sent to La Paz. They are manufacturing two large-sized No. 3 Brodie crushers, one for Cross & Co's mine, in Sierra county, and the other for the Union Iron Works, in Sacramento.

#### McAfee, Spiers & Co.

shipped a large quantity of machinery for sugar plantations in Central America, by the last steamer, and have more on hand for the next. They are putting in new chimneys, overhauling the hoilers, and doing other extensive repairs on the steamer Yosemite. They are also making a hoiler for the schooner Mary Taylor, for a wrecking company; and recently forwarded two large boilers for warming the State Capitol. They have ready for delivery two hoilers, 26 feet long, for a sawmill at Crescent City, and have just sent off a fire hox hoiler, for a new steamboat, on the Willamette river, Oregon. They are also overhauling the hoilers and iron work of the harrel factory, recently burned. They have just completed five boilers, for fog whistles. The engines and whistles were made in the East and the boilers are fitted to them here. They are also making a boiler for two fog siren or horns, to be put up at Point Bonita. Further reference is made to these articles in another column.

The Risdon Iron and Locomotive Works are building, for the Crown Point mine,

two of the heaviest hoisting engines ever sent to Nevada. They are turning out a heavy meter case and other work for the Metropolitan Gas Works, and are about finishing a line of pipe for the Spring Valley Water Works. A hoiler is being made for the North Star mine, at Grass Valley, and hydraulic pipe for the La Grange Ditch Company, in Calaveras county. A large quantity of sheet iron pipe was recently sent to Gold City, Colorado, for the City Water Works there. They have just completed the pipe for the water works at the Savage mine. They are also turning out a large number of car wheels for the various railroads, and have a standing order from the Central Pacific, for 50 wheels a week. Work is being done for the Brunswick mill on Cerson river, and car wheels made for the Truckee Railroad.

#### The Pacific Iron Works

are just completing a 10-stamp mill for Frank & Martin, Arizona, and are making pumping machinery for the Yellow Jacket. A large crusher is being built for a mine in Indian Valley, and coal machinery for the Hardy Company, at Coos Bay. Work is also being done for the smelting furnace of the Richmond mine, at Eureka, and large orders have been received, for water and gas pipe from the Spring Valley Water Works, and the Metropolitan Gas Company. They have recently shipped the machinery of a 20-stamp mill for the Schenectady mine, in Monitor, Alpine county. They have also on hand, various orders for machinery from Mexico.

#### Stoddard's Iron Works

have just completed and forwarded two steam pumps to the Rocky Mountain Coal Company, in Utah, another to the coal mines at Bellingham Bay, and one each to the Oneida, North Amador and Original Amador mines, in Amador county. Three of the above are of the vertical patent, which occupies less room in the shaft, and all are fitted with suction hose necessary for sinking. A steam pump is also being fitted up for the Lincoln mine, in Amador county. Stoddard pumps for feeding hoilers at the Savage, Overman, Gould & Curry and Crown Point, have recently been finished, and a steam pump for the Independent Coal Company, at Mount Diablo. They are making a new wrought iron crank for the steam tug Rescue, and are turning out surface condensers for steamship use; also small condensers for making fresh water for culinary purposes on steamers. One of the latter was recently erected at the hospital at Mare Island, and is supplying the invalids with water.

#### Small's Iron Works

are engaged upon shafting and machinery for wood planers. They are also building a newly invented machine for extinguishing fire. This apparatus consists of a telescopic arrangement, by which the fireman is carried up to a considerable height by the motive power of water let in to the machinery from a hydrant or engine.

### Thanksgiving Proclamation by the Governor.

In accordance with a usage which has become national, I hereby appoint Thursday, the 30th day of November, as a day of Thanksgiving and Praise to Almighty God, for the blessings of the past year. Aside from the causes for thankfulness enumerated in the proclamation of the President of the United States, the people of this State have special cause for gratitude, for exceptions from the calamities which have befallen some of our sister States, east of the mountains. The history of nations, the suggestions of reason, and of religious faith teach us that no people need expect permanent prosperity without recognition of the goodness of Divine Providence and a sense of dependence upon His name.

In testimony whereof, I have hereto set my hand and caused the great [L. s.] seal of the State to be affixed at the city of Sacramento, this tenth day of November, A. D. 1871.

H. H. HAIGHT, Governor.  
Attest: H. L. NICHOLS, Sec'y of State.

### Notes on Contributions to Our Cabinet.\*

No. 531.—A number of fossils. These are from the vicinity of Schell Creek, and some of them are characteristic of the Helderburg limestone of New York, particularly the *pentamerous galeatus*.

No. 532.—Fossils from Schell Creek found in shale above limestone.

No. 533.—Silver ore from the Philadelphia mine, on west side of White Pine mountain.

No. 534.—Ore from Silver Bluff, Ruby Hill, Schell Creek.

No. 535.—Silver ore from Silver Bluff, Ruby Hill, Schell Creek.

No. 536.—Specimens from Woodburn, Schell Creek, north mines. Appears to contain melachite.

No. 537.—Ore from Endeavor mines, on west side of White Pine Mountain. Formation granite.

No. 538.—Ore from Bedger State on west side of White Pine Mountain. Formation granite.

No. 539.—Specimen from Silver Chariot, Queen Springs.

No. 540.—Silver ore from San Francisco mine, Schell Creek, Queen Springs; on each side of the main belt; found encased in dolomite.

No. 541.—Ore from Queen City mine, west side of White Pine District.

No. 542.—Ore from Wreath mine, Ruby Hill, Schell Creek.

No. 543.—Very rich piece of argentiferous galena, from Trench mine, west side of White Pine Mountain.

No. 544.—Specimen from Nutmeg mine, Queen Springs, Schell Creek.

No. 545.—Trilobites from east side of White Pine Mountain, found in shale underlying dolomite, near Trench mine.

No. 546.—Croppings from Lookout mine, Ruby Hill, Schell Creek.

No. 547.—Red oxide of copper from Enterprise Ledge, west side of White Pine Mountain. Formation calcareous schist.

The above specimens were kindly sent us by Mr. A. J. Brown.

\*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

### Annual Report of the Eureka Consolidated Mining Company.

The First Annual Report of the Eureka Consolidated Mining Company, showing its financial transactions in detail, and the receipts and expenditures, from the date of its incorporation, July 7th, 1870, to September 30th, 1871, has been laid upon our table.

The mines owned by the company consist of 14 original locations, upon Ruby Hill, Nevada, to eight of which certificates of patent have been received. The extreme length of all the claims is 1,680 feet, and the mean width over 800 feet. The mines have been opened by 10 principal shafts and inclines, one tunnel with side drift and numerous prospect holes. The various shafts and inclines have reached depths of 75 to 170 feet perpendicular. The present ore reserves are calculated at not less than a six months' supply. From Jan. 1st to Sept. 30th inclusive, there were raised from the mines 14,986 tons of ore. The smelting works of the company consist of five furnaces, of the capacity in all of from 120 to 148 tons per day. Number of tons reduced from Jan. 1st to Sept. 30th, 14,591; number of tons of bullion produced during same time, 2,550. Freight on bullion to C. P. R. R. is fixed at \$13.75 per ton. Charcoal costs \$40 per ton, and Superintendent Keyes believes that coke can be made and delivered at the works for \$32 per ton.

The receipts of the company from July 7th, 1870, to Sept. 30th, 1871, was \$1,126, 158.89. Disbursements, including \$225,000 dividends paid to stockholders, \$996,027.60. Balance net earnings over expenditures, \$130,131.29. The resources are \$552,983.09. Liabilities, 378,326.01. Net resource, \$174,657.08. The cost of extracting ore and hauling to furnaces averaged \$5.52 per ton, and the cost of smelting averaged \$19.60 per ton; 18,825 tons of ore reduced, produced 3,468 tons of base bullion, or 5.75 tons of ore produced, one ton of bullion, at a cost of \$35.70.



## THE WATER QUESTION.

By A. B. BOWEN, CIVIL ENGINEER.

(Continued.)

## Lands Bordering upon Large Bodies of Water.

The construction of levees for the protection of lands bordering upon large sheets of water and exposed to the action of waves, is one of the most obstinate problems encountered by the engineer; and is always attended with great expense. The assessment on that portion of the New Jersey meadows, now in process of reclamation, is eighty dollars per acre. Whether this is sufficient or not, remains to be seen.

## Swamp Lands Bordering Upon Tulare Lake.

Levees for the protection of lands bordering upon Tulare Lake, would be exposed to the action of waves, having an unbroken sweep of more than twenty miles; and, during the prevalence of heavy storms, these waves would dash against the levees, like surf on the sea shore. Those levees, therefore, must be enormously strong, and the cost of their construction and maintenance, would probably exceed the value of the land they would reclaim.

A better plan would be to drain the lake by cutting a navigable channel through the transverse swell of alluvial deposit, separating it from the valley of the San Joaquin. This would reclaim not only the swamp land, but a large portion of the head of the lake, and extend steam navigation for a considerable portion of the year, probably more than one hundred miles farther up the valley.

## Tulare Lake as a Reservoir.

It has often been proposed to use this basin as a reservoir for irrigation, and some examinations are now being made with the view of ascertaining whether this be feasible. A great drawback to this scheme, is the shallowness of the basin, and the area of the lake, which is so great that the evaporation from its surface considerably exceeds the average annual influx of water. This is shown by the constant recession of the lake, for a series of years, until an extraordinary flood comes to fill it up again.

To venture an opinion in advance of surveys would be hazardous in the extreme. One thing, however, is certain. The valley of the San Joaquin must be irrigated, even at the expense, if necessary, of countless small reservoirs in the foot hills and mountains. Perhaps the most economical plan, may be, to diminish the area of Tulare Lake as much as possible, by drainage, surround this circumscribed area by heavy embankments, and dam the outlet. This would save a vast amount of water that now passes off by evaporation. Please observe our *perhaps* however, for the expression of an opinion on the meagre data within our reach, would justify our assignment to the State Boarding House in Stockton.

The surveys of which we have spoken, are being made under the direction of R. M. Brereton, C. E., an English gentleman, who is understood to have had experience in hydraulic engineering in India; and it is presumed that his examination will be sufficiently thorough to set this vexed question at rest.

## Lands North of San Pablo Bay.

The Salt marsh along the northern shores of San Pablo Bay, is in many places, hardly covered by the ordinary high tide. A few years ago, during the prevalence of a protracted southeast storm, the incoming tide meeting the swollen waters of the Sacramento river, and of the Sonoma, Petaluma, and San Antonio Creeks, so flooded this land, that a schooner laden with lumber, was carried high and dry, several rods inland over the marsh, which at that time, everywhere offered to the eye, a wide waste of crested waves.

## Embankments

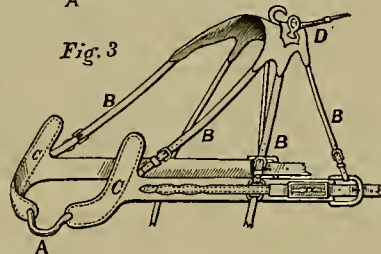
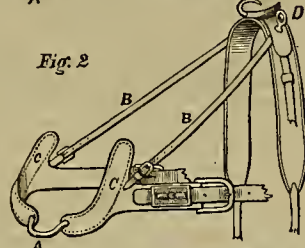
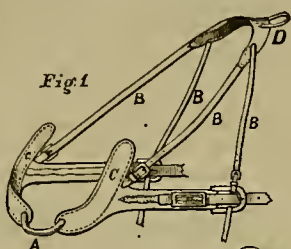
for the protection of this land, should be set back something like a hundred yards from the shore, so that the waves may have an opportunity to exhaust their force before reaching this levee, which at this distance from the shore need not be more than five or six feet high. The soil packs very hard when moist, though it cracks, and, if cultivated, and well pulverized, drifts when dry. The levee should be made broad enough on top for a roadway, the travel over which, without being sufficient to harm the levee, would make it compact and strong.

The diamond said to have been found by the Pinal (Arizona) prospectors proves to be quartz crystals.

## Dutton's Improved Harness.

This new invention is designed to meet fairly all the objections urged against the breast collar harness, and the collar and hames for light driving. We have known of its continued use, both single and double, for over six months; and we can say, from our observation and knowledge of the principles upon which it is constructed, as far as we are able to judge, that it fully meets these objections, and is a really efficient and good harness for the purposes to which light harness is applicable—huggy, express wagon, hack use, and all work lighter than severe heavy draught.

The principal points of the invention are these: the insertion into the breast-strap of a plate of steel with flattened ends, *C*, in the figure, which are so shaped as to fit the lower part of the horse's shoulders even better than the best-fitting collar, and covered with leather, to give the horse a surface sufficiently soft to work against, without danger of chafing, and sufficiently hard to prevent heating and galling. These flattened and covered parts on the sides of the neck are connected by



## DUTTON'S IMPROVED HARNESS.

a bow of steel, *A* (both the sides and the hoisting parts of the same steel plate), which is designed to prevent pressure upon the windpipe and jugular vein, and permit of the attachment of the martingales and pole-strap.

This collar is suspended, by straps, *B*, from a saddle on the withers or back of the horse, which may be either attached to the ordinary saddle as in fig. 1, made part of it, by flattened leather plates to fit under the terrets, as in fig. 2, or may take its place as in fig. 3. The use of this saddle gives the horse greater ease and certainty in holding back, when going down hill, and in supporting the pole, than when the neck has to bear this weight.

The objects to be attained by this improvement are these: Preventing the too common accident of choking-down, and relieving the horse from the distress, in pulling, from pressure on the veins of the neck, inseparable from the use of the breast collar, and perfectly possible in the old-style collar; placing the draft-strain on the sides of the neck, and taking it from across the points of the shoulder, whence the horse pulls at a disadvantage; relieving the neck from all pressure, and the mane from wear; saving the neck from galling and chafing; giving the horse

greater confidence and certainty in holding back, than he can have when that strain is resisted from the neck.

This invention, which has been thoroughly tested before being offered to the public, is expected to drive the breast collar entirely out of use, and also the old-fashioned collar and hames for light driving. It has received diplomas at the late Fair of the Mechanics' Institute in San Francisco, at the State Fair at Sacramento, and at the Fair of the Sonoma and Marin District Society, at Petaluma—the only Fairs at which it has been exhibited; and wherever shown, it has received the warmest encomiums.

All information in regard to this invention, the patent for which was obtained through this office, will be cheerfully given by Mr. John Ashton, Tomales, Marin county, Cal., who is also authorized to dispose of rights for its manufacture and sale.

## Miner's and Metallurgist's Companion.

Our readers will be glad to learn, particularly those who are interested in mining and metallurgical operations, of the advent of a new and useful addition to mining literature, in the shape of a work by J. S. Phillips, well known, both in England and in our own country, in connection with such subjects. The book is called "The Explorer's, Miner's and Metallurgist's Companion," comprising in all 640 pages, and illustrated with some 80 cuts. Published by Dewey & Co., SCIENTIFIC PRESS office.

Many works have been written on metallurgy, and but a few on mining; and these few are more of a general, historically interesting, or statistical import, than of practical value for the daily requirements of miners. Little has been said of the peculiar geology of mineral bearing rocks, or of the indicative features of mineralized sections; less of the underground operations of mining; and nothing of that most effective lever, its mechanical engineering, either above or below the surface.

The author of this work has endeavored, in many instances, to trail new ground, and elucidate departments that have not been so fully exposed as they should have been, and has rather inclined towards the few imperative and better methods, machines and processes, than the more elaborate descriptions of all.

The geological department is written more for those who should fully understand the positions of minerals, than for geological accuracy; intended to create more general and comprehensive ideas of the various formations. The exploration of mineral countries, has been most carefully considered and safely advised.

The chapters on the comportment and peculiarities of mineral veins, are derived from observations made during the many years' experience of Mr. Phillips, and contain some records of value to the amateur. The section on assaying and discrimination of minerals, embraces many varied and more available methods for practical men and amateurs; so that, one facility being absent, another will be found present. In the commercial methods, the more direct, less mystified and least dangerous means and fluxes have been selected.

In mining and engineering, the best plans of operation and machines have been extolled, and the most common errors of the past exposed, as besacons for avoidance. The illustrations are more particularly inserted for the better explanation of novelties introduced, than for reproduction from other works.

In the metallurgy of the volume, just sufficient has been selected from the best modes for rendering the ores of remote countries more profitably marketable, with the least possible study of this complicated business.

Particulars as to price, headings of chapters, etc., may be had by reference to advertisement in another column.

## PATENTS &amp; INVENTIONS.

## Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

## FOR THE WEEK ENDING NOVEMBER 7.

GATE.—David Creighton, Vacaville, Cal. PUMP.—John Marquis, San Francisco, Cal. STOP-COCK.—Jacob Radston, San Francisco, Cal.

ROASTING AND TREATING ORES.—John W. Bailey, San Francisco, Cal.

FURNACE FOR ROASTING ORES.—John W. Bailey, San Francisco, Cal.

MEDICAL COMPOUND FOR THE CURE OF RHEUMATISM.—Charles F. Washburn, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible by telegraph or otherwise at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

## Mining Accidents.

Wm. Sharp, of Nortonville, 24 years of age, lost his life, on Thursday of last week, through inhaling foul gas, in the Brentwood mine, at Marsh Ranch. Another miner, named O'Strander, was rescued when nearly exhausted, and subsequently recovered.

A miner named Wm. Merritt, working in the Coe mine, near Grass Valley, was badly crushed last week, by a cave in the mine.

Two men, named Andrew Wilson, a native of Cronstadt, Russia, aged 35 years, and John Beckley, a Cornishman, 24 years of age, were killed a few days since in the Belcher mine, by being thrown down the shaft, by the unexpected starting of the cage.

This pinion wheel of the hoisting works of the Illinois mine, in Colorado, gave way recently, precipitating a load of two tons to the bottom. Fortunately no one was injured.

John McNallis, a miner at the North Star mine, at Grass Valley, was severely hurt, by a mass of dirt and rock falling upon him. Wm. Cleghorn, a miner on Nevada Creek, was caught by the falling dirt in a drift, and was found alive after five days and a half. His hip was dislocated, and his right leg fractured.

## New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

STATE INVESTMENT INSURANCE Co.—Capital stock \$500,000, in 5,000 shares. Trustees: T. Curtis, A. J. Bryant, P. Donahue, F. M. Pixley, C. D. O'Sullivan, E. Burke, J. H. Saunders, J. W. Nye, J. Middleton, H. Whittell, C. H. Cushing, A. Austin, J. Rosenfeld, T. N. Cazneau, and J. J. Marks.

FORMAN MINING Co.—Capital stock, \$5,000,000 in 50,000 shares. Trustees: C. Forman, R. F. Morrow, and A. E. Head.

MERCEN AND SAN JOAQUIN IRRIGATING Co.—Capital stock, \$1,000,000 in 10,000 shares. Trustees: J. McPike, G. D. Roberts, R. Gibbons, J. B. Haggin, and B. B. Winn.

DUTCH FLAT BLUE GRAVEL MINING Co.—Capital stock, \$4,000,000, in 40,000 shares. Trustees: L. A. Booth, J. B. Haggin, E. B. Dorsey, G. D. Roberts, and W. H. Raymond.

SACRAMENTO VALLEY CENTRAL CANAL Co.—Capital stock, \$10,000,000, in 100,000 shares. Trustees: J. M. Gregg, G. R. Lowe, and W. P. Dangerfield.

The following have filed certificates with the County Clerk, Sacramento:

HUTCHICK WATER Co.—Capital stock \$50,000.

THE BABCOCK FIRE EXTINGUISHER.—An experiment was made with the Babcock Extinguisher on the Pacific Steamship wharf, on Tuesday last, in the presence of a large number of insurance men and captains of steamships and others. The experiment was highly satisfactory as to its merits and great practical value.

Cold weather has set in in Nevada, and ice forms in Gold Hill and Virginia City nightly. Carson river was frozen over lately.

Considerable snow has fallen in Utah. The roads to the Cottonwood Districts are kept open with difficulty.



## DOMESTIC ECONOMY.

### Softening Water for Household Purposes.

EDITORS PRESS:—In many parts of California the "hardness" of the water is a constant source of trouble and vexation to housekeepers. It is frequently unfit for culinary purposes, and it is the exception to the rule to find good washing water. Most families, therefore, resort to sal-soda, borax, concentrated lye, or to the various washing fluids advertised for sale to "soften" (or "break," as the washmen call it,) the water before washing clothes, gaining thereby a saving in labor and soap, which is, however, more than counterbalanced by the destruction of the fabric of the garments washed.

Your correspondent has been "keeping house" in this State, in various places, nearly ten years, and has experimented with all sorts of washing powders and fluids, and has found the objections stated above applicable to them all. He has recently, however, been using a modification of Dr. Clark's process for softening water, with such satisfactory results that he sends it for publication that others may benefit by his experiment.

The "hardness" in water is generally caused by its holding in solution a salt of lime, most frequently in the form of bicarbonate of lime. When soap, which is a compound of an alkali and an oily acid, is added to the hard water, the lime decomposes it and combines with the oily acid to form a lime soap, which is insoluble and has no cleansing properties. Now every grain of bicarbonate of lime dissolved in water decomposes ten grains of soap; water, therefore, which contains, for example, 20 grains of lime salt to the gallon, will destroy 200 grains of soap; in other words the first half ounce of soap added to a gallon of water of this degree of hardness, will disappear without forming a lather or having any cleansing effect. Clark's process for softening water is based upon the principle that carbonate of lime, which is but sparingly soluble in pure water, dissolves readily in water containing carbonic acid forming a bi-carbonate, and that when a solution of caustic lime is added to such water, it takes part of the carbonic acid away from the bi-carbonate and reduces the whole to the form of an insoluble carbonate of lime or chalk, which falls down "taking along with it in a sort of net work other mineral salts as well as some organic matter."

Various methods have been suggested to adapt this principle to practical use, most of which require expensive machinery or a heavy outlay for tanks and reservoirs. The plan in use by your correspondent is cheap and easily followed.

The only apparatus required is two common barrels, placed on end, with their heads removed and fashioned into covers. Into one of these is placed about half a bushel of unslacked lime; it is then filled with water and briskly agitated for a few moments and the undissolved lime permitted to precipitate, when the supernatant liquid becomes clear and transparent.

Then fill the other barrel with this clear lime water, and common hard water in the proportion of one huckful of the former to eight or ten of the latter, (placing all the lime water in the barrel first), and stir briskly for a few moments. The clear liquid soon becomes turbid. A white cloudy precipitate of insoluble carbonate of lime forms and gradually falls to the bottom of the vessel, leaving the water transparent as crystal and soft as rain water. It is excellent drinking water, and makes splendid tea, and for laundry purposes leaves nothing to be desired. It makes a lather easily, and clothes washed in it are white and pure without the expenditure of half the amount of soap required by the same water before the precipitation of the chalk.

Of course the proportion of lime water to common water given above will vary with the degree of hardness of the water in any given locality. This can only be determined by experiment, the degree of hardness being gauged by the quantity of soap required to be added before a lather is produced.

When the barrel of lime water is exhausted it is only necessary to add more water to the same lime, as it can be used over and over again.

W. W. H.

### Apples in Cooking.

Julia Colman, in the *Rural New Yorker*, in speaking of the various uses to which apples may be applied, says:

A broad field where apples come in when milk and eggs go out, lies in the range of puddings, a style of dishes hitherto very largely dependent on milk and eggs. And first, we will take the simplest, a bread pudding. Steep your apples gently in a moderate amount of water, and sweeten to the taste. If wanted very nice, strain through a colander. Cut bread in slices one-third of an inch thick. If hard, steam it. Put in an earthen pudding dish a thin layer of stewed apples, and then a layer of bread, until the dish is filled, finishing off with the fruit. Some like more apples, others less. Bake about 40 minutes. This is very plain. It can be improved by moistening the bread in a preparation of one part lemon juice and four or five parts water, sweetened to taste; and by scattering on the surface of each layer of apples, a few nicely washed Zante currants, or seedless raisins. Or apple and grape, apple and quince, apple and cranberry may be used, always stewed.

Another series of puddings can be made with uncooked chopped apple mixed with equal quantities of cooked pearl-barley, or cracked wheat or hominy. To one pint of each of these ingredients add one gill of sugar, and, if you wish it, one-half pint of stewed raisins or Zante currants, and the juice of one lemon, (with two spoonfuls more of sugar to sweeten it;) mix thoroughly, and bake an hour or more.

A very simple crusted pudding may be made by filling an earthen pudding-dish with spiced apples, and spreading over it, thickly, a batter crust made by stirring wheat meal into cold water until the batter is just too thick to settle flat. Bake 30 or 40 minutes, then loosen at the edges, invert on a plate, mash and sweeten the apples, cut in pie-quarters, and serve. Instead of the batter crust, pour boiling water into wheat meal and stir lightly, making a dough just firm enough to roll out; make it one-third of an inch thick, spread over the apple, and bake 30 minutes, or until the apples are tender; invert and serve as above.

A cocoa-nut pudding, more delicate than any of the above, is made with two-thirds grated apple and one-third grated cocoa-nut, sweetened to the taste, and a very little grated nutmeg, one-third of a teaspoonful to a quart of pudding, just enough to flavor it, without giving the "tang" of the nutmeg. This is the proper way to use flavors when used at all. The result will be there, and evident, though the partaker may not be able to trace its origin. Bake this pudding half an hour. Stewed apple may be mixed in equal quantities with scalded sago or soaked tapioca, with currants, stewed raisins, or seedless raisins to the taste. Sweeten and bake 40 minutes. Or stuffed and cored apples with the raisins from the soaked and sweetened tapioca, or sago and apple over them; bake till the apples are tender, and you have a showy and delicious *bird's-nest pudding*. But these puddings are very good without the "bird's-nest," and they are very convenient to make with canned apples, after the fresh apples are gone.

### Effect of Keeping Flour in Barrels.

As is well known, flour kept in barrels for a long time often acquires a peculiar odor, supposed to be derived from the barrel. Professor Poleck, of Silesia, has lately made a careful examination of such flour, and has ascertained that this smell actually indicates an incipient decomposition prejudicial to bread-making, the gluten of the flour having in part become changed into a soluble body. Thus, while sound flour, preserved in sacks contained 11.06 per cent. of gluten and 1.44 per cent. of soluble aluminous matter, four other specimens of flour taken from different barrels were severally composed of 8.37 per cent. gluten to 2.14 per cent. soluble albumen; 7.40 per cent. to 6.90 per cent; 7.23 per cent. to 4.44 per cent.; and 6.54 per cent. to 6.46 per cent. Two samples with more than 6 per cent. of soluble matter had an acid reaction, while the others were neutral. Professor Poleck believes this chemical change of the flour to be induced by the fact that the barrel prevents communication with the atmospheric air and the equalization of temperature. This view is confirmed by the oft-repeated observation that flour in sacks keeps fresh for a much longer time, and that the mustiness in barrels always develops first, and exists in the highest degree in the center, viz., that portion most remote from the outer air.

### Domestic Receipts.

#### Good Recipes for Soup.

**OYSTER SOUP.**—Three quarts of opened oysters; three pints of milk. Boil the oysters in their own liquor, with a very little powdered mace, cayenne pepper, and a piece of butter the size of an egg. When the oysters have become plump, add the milk; this must be done carefully to prevent curdling, and thicken the whole with powdered and sifted cracker. Many prefer this soup without using thickening.

**GREEN PEA PUREE.**—Soak one quart of peas in boiling water for an hour. Take them out and put them in fresh boiling water to cook, with a pinch of salt, and a bit of celery, if procurable. When well cooked mash them and rub through a sieve. Put in a piece of butter half the size of an egg, and a very little pepper and a pinch of salt and half a pint of cream, and warm up for the table. All purees are better for a foundation of beef-steak.

**PUREE OF SQUASH.**—Cut the squash or pumpkin into small pieces, and stew it with a little salt. Rub it through a sieve, and make it like "green pea puree," with butter, cream, pepper and salt.

**PEA SOUP.**—Soak a quart of peas in lukewarm water for three hours; pour off the water and boil in three and a half quarts of water well salted, until the peas are thoroughly soft. Then strain through a colander and throw the peas away. This will keep several days in cool weather. When used, take out the needful quantity, boil it with a bit of pork partially cooked, an onion, a pinch of salt and pepper, and serve hot with squares of toasted bread floating on top.

**TURTLE BEAN SOUP.**—Take a quart of black beans; wash them and put in a pot with the usual quantity of water, and boil until thoroughly soft. Dip them out and rub the pulp through the colander, and return it to the liquid in the pot. Add some thyme in a clean cloth, put it into the pot and let it boil a few minutes for flavor. Slice some hard-boiled eggs and drop them into the soup. Add a little butter, pepper and salt. Some people like a little wine, and a slice or two of ham at the bottom of the tureen.

#### Mechanical Hints.

**STAIN FOR NEW OAK.**—A correspondent, who objects to the use of lime water as a stain for oak, on the ground that the color produced, though good at first, becomes in two years of foxy red, says: For new work, especially church work, let no oil, no ash, come near it, but wash it with hot beer, and rub it well; the grain will show admirably, and time will mellow it down to a tone which never could be acquired if it had been previously doctored.

**DRY ROT OR WORM IN FURNITURE.**—A Berlin cabinet maker says: Take equal parts of paraffine and linseed oil; saturate the same; that will stop their work. If the articles are exposed to an airy place for a few days it will dry, and the smell will go off. I have used the same to advantage.

**MULTUM IN PARVO.**—W. Z. Cooke, of Birmingham, England, has invented a mode of constructing a table, bed, child's rocking cot, settee, folding chair, drawers and press, in such a manner as to be combined together, wholly or partially, so as to be used when desired, and capable of being folded up into small compass.

**AN OLD STEAM-ENGINE.**—The Spanish cinabar mine of Almaden, is one of the last places one would expect to find one of Boulton & Watt's original engines, but it appears that one was erected there in 1799, and has been at work ever since.

MANY mechanics complain of inability to set a machine to be driven at right angles from the line or counter-shaft, without continual trouble with friction from the shifter on the belt, and the slipping of the belt to the tight or loose pulley. The operation is a simple one, and just as effectual as to drive in a direct perpendicular or horizontal. Take the center of the off or contributing side of your drive pulley and drop it on a plummet; let this line decide the center and perpendicular of the side of the tight and loose pulleys which takes your belt at a right-angle below. Unless your eye is accustomed to the angles which are given to the appearance of the belt, from either side, you will condemn the position without trying, but if you are careful to get an exact perpendicular in the manner described there can be no mistake.—*American Manufacturer.*

## LIFE THOUGHTS.

**HOLD ON.**—Hold on to your tongue when you are just ready to swear, or speak harshly, or use any improper word.

Hold on to your hand when you are about to strike or do any wrong.

Hold on to your feet when you are on the point of kicking, or running away from study, or pursuing the path of error, shams, or crime.

Hold on to your temper when you are angry, excited, or imposed upon, or others angry about you.

Hold on to your good name at all times, for it is much more valuable to you than gold, high places, or fashionable attire.

Hold on to the truth, for it will serve you well, and do you good throughout eternity.

PROVIDENCE has a thousand keys, to open a thousand doors, for the deliverance of his own.

It is grateful to see the clear shining of the sun after a rain. It is not a change from truth to falsehood which men need, but from one form of truth to another.

POLITENESS is but kind feeling toward others, acted out in our intercourse with them. We are always polite to those we respect and esteem.

TRUST him little who smilingly praises all alike; him less who cheerfully censures all alike; him least who is coldly indifferent to all alike.

It is more from carelessness about truth, than from intentional lying, that there is so much falsehood in the world.

THE way to get rid of doubts in religion, is to go to work with all our might and practice what we do not doubt.

STRIVE after an equal tranquility of mind on all occasions and in all circumstances. Strive to get accustomed to this frame.

ENERGY will do anything that can be done in this world; and no talents, no circumstances, no opportunities, will make a man without it.

### Keep Your Eyes Open.

Two teachers may be standing before the same class, one will merely be aware that there is a general disorder and noise throughout the room, without being able to identify any particular scholar as transgressing.

The other will notice that James is talking, that William is pulling his neighbor's hair, that George is munching an apple, and so on. The difference in the two is that one's mind is awake and he sees all that is going on, and knows first where, when, and how to stop it. It therefore becomes every teacher to constantly have his eyes open, and to see all that is being done. A man's mind must be awake. In fact this is the secret of the whole matter, for the more the face and eyes are quiet and the mind is on the alert, the more will a man see. Seeing is rather a mental than a bodily act, though of course the bodily organ is necessary to its accomplishment. Wherefore to be a good observer, we have learned that one must maintain a quiet and composed demeanor, but be thoroughly wide-awake within.

**GRAVES.**—What unconscious tribute we pay to the doctrine of the resurrection, by the love and honor in which we hold graves, century after century. Surely, in our hearts we believe that each such spot becomes forever unlike all other ground; by whatever process the dear flesh crumbles, returns to dust, and is changed into the leaf, flower, and seed that perish in our hearts, we believe that the grave remains a grave, and that at least this much is sure; that the happy, soaring, growing spirit, which has gone to a world above, will never forget where the tiny spot is on this one, in which its human body was laid.

**THINK.**—Do your own thinking. Yes, that is the idea. Think for yourself. It is well to listen to the expressed thoughts of others, and it is an agreeable pastime to give expression to your thoughts. But when alone, weigh what you have said, and traverse what you have said. It is well to do this, for it will assist in curing you of false notions, and in eradicating unprofitable and vicious ideas, and in time make you better men and women. What you thus gain from surroundings, you will unwittingly transmit to the rising generation, and the result will be that you will do your share in the glorious work of elevating the human family. Do your own thinking.



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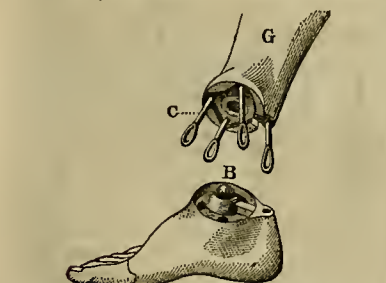
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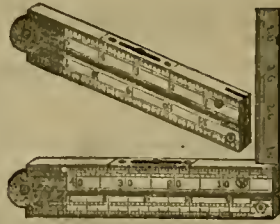
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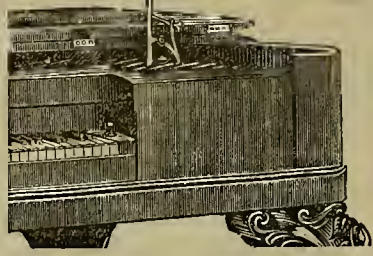
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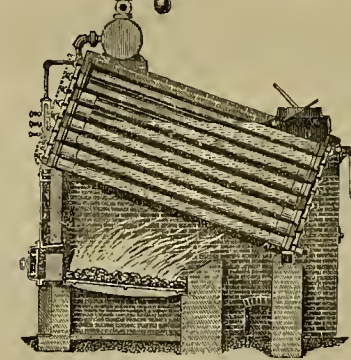
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Travelers' Guide.

**CENTRAL PACIFIC RAILROAD.**

**OVERLAND TRAINS.**

Express	Express	November 5	Express	Express
Daily, via	Daily, via	1871.	Daily, via	Daily, via
Oakland, Vallejo.	Oakland, Vallejo.		Oakland, Vallejo.	Oakland, Vallejo.
7:00 A.M.	8:30 A.M.	San Francisco	7:45 P.M.	8:30 P.M.
7:35 A.M.	9:00 A.M.	Oakland	8:00 P.M.	8:30 P.M.
7:55 A.M.	9:20 A.M.	San Jose	8:30 P.M.	8:30 P.M.
8:40 A.M.	10:00 A.M.	Niles	8:50 P.M.	8:50 P.M.
11:25 A.M.	12:00 P.M.	Stockton	9:05 P.M.	9:05 P.M.
10:30 A.M.	11:00 A.M.	Vallejo	9:45 P.M.	9:45 P.M.
12:50 P.M.	1:30 P.M.	Davis	3:10 P.M.	3:10 P.M.
1:15 P.M.	2:00 P.M.	Sacramento	2:30 P.M.	2:35 P.M.
5:15 P.M.	6:00 P.M.	Colfax	10:45 P.M.	10:45 P.M.
12:45 A.M.	1:30 A.M.	Reno	3:20 A.M.	3:20 A.M.
9:00 A.M.	9:45 A.M.	Winnemucca	4:15 P.M.	4:15 P.M.
12:00 M.	1:00 P.M.	Battle Mountain	1:25 P.M.	1:25 P.M.
4:40 P.M.	5:30 P.M.	Elko	8:45 A.M.	8:45 A.M.
6:20 A.M.	7:00 A.M.	Orden	5:20 P.M.	5:20 P.M.

**San Francisco and San Jose.**

7:10 P.M.	7:40 P.M.	San Francisco	10:40 A.M.	10:40 A.M.
8:30 P.M.	9:00 P.M.	Niles	8:40 A.M.	8:40 A.M.
8:30 P.M.	9:00 P.M.	San Jose	7:50 A.M.	7:50 A.M.

**San Francisco, Stockton and Modesto.**

4:00 P.M.	7:00 A.M.	San Francisco	8:30 P.M.	12:30 P.M.
8:05 P.M.	11:04 A.M.	Lathrop	4:45 P.M.	8:10 A.M.
9:10 P.M.	5:50 P.M.	Modesto	1:25 P.M.	7:00 A.M.
8:30 P.M.	11:25 A.M.	Stockton	4:24 P.M.	7:45 A.M.

**Sacramento, Marysville and Tehama.**

9:40 A.M.	2:35 P.M.	Sacramento	1:05 P.M.	9:45 P.M.
10:15 A.M.	3:05 P.M.	Function	12:15 P.M.	12:30 P.M.
1:05 P.M.	4:55 P.M.	Marysville	10:20 A.M.	12:00 P.M.
8:00 P.M.	8:35 P.M.	Tehama	6:50 A.M.	5:30 A.M.

**OAKLAND BRANCH.—LEAVE SAN FRANCISCO,** 7:00,  
8:10, 9:2, 10:10 and 11:20 a. m., 12:10, 1:50, 3:00, 4:00, 5:15, 6:30, 8:00  
9:20 and 11:30 p. m. (8:20, 11:20 and 3:00 to Oakland only).  
**LEAVE STOCKTON,** 5:15, 6:40, 7:50, 9:00 and 11:00 a. m., 1:30,  
2:40, 4:55, 6:10, 7:40 and 10:10 p. m.  
**LEAVE OAKLAND,** 5:25, 6:50, 8:00, 9:10, 10:00, and 11:10 a.  
m., 12:00, 1:40, 2:50, 3:50, 5:05, 6:20, 7:50 and 10:20 p. m.

**ALAMEDA BRANCH.—LEAVE SAN FRANCISCO,** 7:20, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:30, 11:15 and  
5:30 to Fruit Vale only).  
**LEAVE HAYWARD,** 4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
**LEAVE FRUIT VALE,** 4:25, 7:55, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.

**CALIFORNIA PACIFIC RAILROAD.**

Leave	Leave	Arrive	Arrive	Arrive
S. Fran.	Vallejo.	Calistoga.	Marysville.	Sacra to.
8:30 A.M.	10:30 A.M.	1:30 P.M.	4:30 P.M.	1:30 P.M.
* 9:10 P.M.	6:00 P.M.	8:30 P.M.	10:30 P.M.	8:45 P.M.
Leave	Leave	Arrive	Arrive	Arrive
Sacra to.	Marysville.	Calistoga.	Vallejo.	S. Fran.
* 7:30 A.M.	6:00 A.M.	7:50 A.M.	10:15 A.M.	12:30 P.M.
2:30 P.M.	* 9:00 A.M.	2:15 P.M.	5:45 P.M.	8:00 P.M.

**Sacramento, Davis and Marysville.**

* 7:15 P.M.	* 11:45 A.M.	Sacramento	* 8:00 A.M.	* 2:00 P.M.
8:00 A.M.	12:40 P.M.	Davis	8:00 A.M.	12:30 P.M.
8:40 P.M.	1:45 P.M.	Woodland	7:35 A.M.	11:40 A.M.
10:30 P.M.	4:30 P.M.	Marysville	6:00 A.M.	9:00 A.M.

**SAN FRANCISCO & N. PACIFIC R. R.**

Leave	* 12:00 P.M.	San Francisco	* 11:00 A.M.	Arrive
.....	4:35 P.M.	Donahue	8:45 A.M.	.....
.....	5:00 P.M.	Petaluma	8:20 A.M.	.....
.....	6:00 P.M.	Santa Rosa	7:30 A.M.	.....
.....	6:45 P.M.	Healdsburg	6:45 A.M.	.....

**CAL. P. R. R. CO.'S STEAMERS.**

* 4:00 P.M.	* 4:00 P.M.	San Francisco	* 10:00 P.M.	* 8:00 P.M.
6:00 P.M.	6:00 P.M.	Benicia	8:00 P.M.	6:00 P.M.
* 2:00 A.M.	* 2:00 A.M.	Stockton	2:00 P.M.	.....
.....	.....	Sacramento	.....	12:00 M.

\*Sundays excepted.

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## DIRECT TESTIMONY.

TOMALES, Marin Co., Cal., Oct. 28, 1871.

MESSES. DEWEY & Co.—Gentlemen:—We are happy to acknowledge the receipt this day of Letters Patent, No. 120,049, for "Dutton's Improved Harness," and dated October 17, 1871. At the same time, we desire to acknowledge, with thanks, your promptness and certainty in obtaining this patent. A very prominent New York firm, of great reputation, to whom this matter was intrusted at the start, in two and one-half months got the matter so far along that we received a notification that our claim was rejected, on grounds of pretended interference this most frivolous and nonsensical, and too clearly showing that they were interested in having an "appeal" prosecuted at our expense and for their benefit. Not being fascinated with the disposition to receive without rendering an equivalent, the matter was intrusted to you, and in two weeks a notification was received that the claim had not been properly presented and that it was valid and would be allowed. We were enabled then to proceed with the invention with some degree of certainty. In less than a month you had the claim passed for issue. Your method of conducting the business merits our warmest praise; and so long as your firm acts upon the same scale of fairness and promptness as shown in our experience, you may rest assured that all our patent business will pass through your hands. We are, yours truly, DUTTON & ASHTON.

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## THE

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BY P. M. RANDALL

REVISED AND ENLARGED EDITION.—1871.

## CONTENTS:

APPLIED MECHANICS—Thin Cylinders, Thick Hollow Cylinders, Relative Grinding Capacity of differently formed Grinding Plates, Friction, Water Pipes, Velocity of Streams, Water Power, Water Wheels, Steam Power, ASSAY—Mechanical Assays, Dry Way of Assay, Humid Way of Assay, Assay or Analysis of Iron Ores containing Manganese, Assay or Analysis of Ores containing Gold, Silver, Copper, Lead, Iron and Sulphur. BEHAVIOR OF SOLUTIONS OF METALLIC OXIDES WITH REAGENTS—BLOW-PIPE—EXAMINATION OF MINERALS. GOLD—Treatment of Ore Containing Gold: By Smelting; By Amalgamation; By Chlorination. MILL—STAMP—SILVER—GOLD. MINERAL VEINS—Species of, Formation of, Exploration of, Exploitation of. MIDS—VENTILATION OF. QUARTZ MACHINERY—Rock Breakers, Batteries, Mortars, Tappets, Gams, Cam-Shafts, Stamps, Dies, Screens, Guides, Grinders and Amalgamators. Wheeler & Randall's Excelsior Grinder and Amalgamator. Separators. Wheeler & Randall's Conoidal Separator, Concentrators, Wheeler & Randall's Eureka Concentrator. The Wheeler and Randall Tumble Copper Concentrator and Amalgamator. Retorts, Gold Retorts, Silver Retorts, Crucibles, Ingot Molds. REDUCTION AND CONCENTRATION OF ORES—DRY WAY. ROASTING—Heaps, Furnaces. SMELTING. SILVER—Ores of Silver, Treatment of Silver Ores: By Smelting; By Solution; By Amalgamation. Extraction of Silver from Silver from Chuse Copper, Extraction of Silver from Copper Matte, Sodium Amalgam, Purification of Mercury, Quicksilvering of Copper-Plate, Cupellation of Gold and Silver, Refining of Gold and Silver.

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We desire to make arrangements with a reliable man to act as general agent for Oregon and Washington Territories, to sell a new and saleable article.

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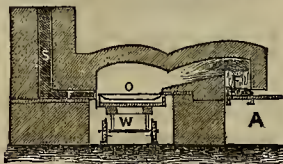
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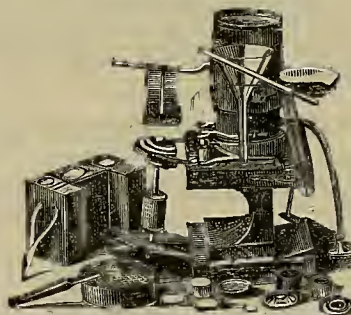
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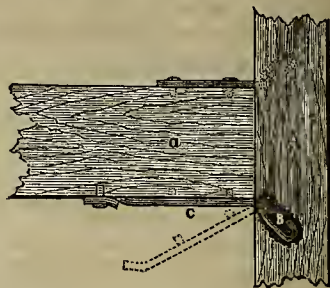
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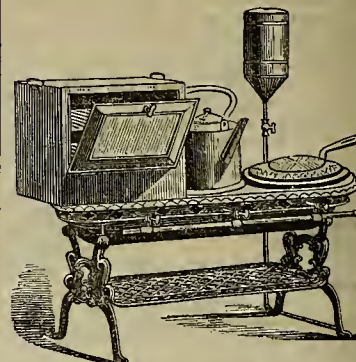
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19v2-tf-sa

E. T. BARLOW, Patentee.

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16v20-3m

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Mining and Other Companies.

In the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—hence in the very latest hour we can receive advertisements.

**Altona Gravel Mining Company—Location**  
of works, Grass Valley, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of October, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 4th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 26th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **DAVID WILDER, Secretary.**  
Office, No. 24 Merchants' Exchange, California street, San Francisco, Cal. nov-15w

**Eagle Quicksilver Mining Company—Location**  
of works, Santa Barbara County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of October, 1871, an assessment of Forty (40) dollars per share was levied upon each and every share of the mines of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 3, No. 302 Montgomery street, San Francisco, Cal. Any share upon which said assessment shall remain unpaid on Thursday, January 4th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **WM. H. WATSON, Secretary.**  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. nov-15w

**Kearsarge Mining Company—Location**  
of works, Kearsarge District, Inyo County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of October, A. D. 1871, an assessment of five (\$5) dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room No. 10, Express Building, northeast corner of California and Montgomery streets, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Monday, the 26th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 26th day of November, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **JON. L. KIN, Secretary.**  
Office, Room No. 10, Express Building, northeast corner of California and Montgomery streets, San Francisco, California. nov-15w

**Office of the Noonday Silver Mining Company—Location**  
of works, White Pine Mining District, White Pine County, State of Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of October, A. D. 1871, the several amounts set opposite the names of the respective shareholders, as follows:

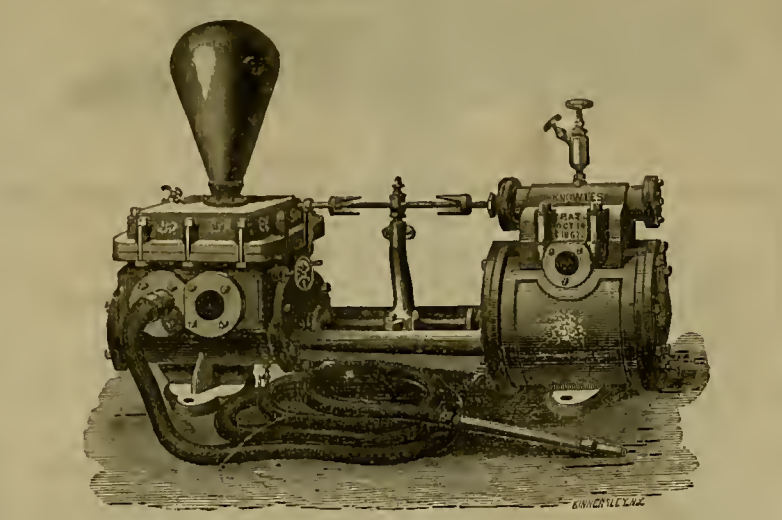
Names.	No. Certificates.	No. shares.	Amount.
Bourne, R. M., Trustee.....	762	5	\$ 1 00
Barton, W. H., Trustee.....	100	20	20 00
Barton, W. H., Trustee.....	74	50	50 00
Child & Jones, Trustee.....	113	100	20 00
Child & Jones, Trustee.....	732	99	19 80
Courwen, G. A., Trustee.....	814	50	10 00
Conner, H., Trustee.....	312	300	60 00
Dean, G. A., Trustee.....	769	25	5 00
Dean, G. A., Trustee.....	868	8	1 00
Farnum, E., Trustee.....	77	100	20 00
Farnum, E., Trustee.....	79	100	20 00
Fortman, B., Trustee.....	818	100	20 00
Forrest, J. M., Trustee.....	925	20	4 00
Hunt, Geo., Trustee.....	822	200	40 00
Hunt, Geo., Trustee.....	863	100	20 00
Hughes, W. A., Trustee.....	722	100	20 00
Hill, A. E., Trustee.....	763	5	1 00
Hill, A. E., Trustee.....	929	60	10 00
Hill, A. E., Trustee.....	342	50	10 00
Hill, A. E., Trustee.....	382	50	10 00
Hill, A. E., Trustee.....	446	95	19 00
Hill, N. H., Trustee.....	772	100	20 00
Kent, R. F., Trustee.....	514	100	20 00
Kent, R. F., Trustee.....	810	100	20 00
King, W. F., Trustee.....	738	20	4 00
Lisak, L. S., Trustee.....	772	50	10 00
McDonald & Whitney, Tr 667		200	40 00
McDonald & Whitney, Tr 668		80	16 00
Mitchell, J. S., Trustee.....	894	100	20 00
Martin, M. S., Trustee.....	514	100	20 00
Martin, M. S., Trustee.....	698	100	20 00
Martin, M. S., Trustee.....	774	100	20 00
McDonald, M. J., Trustee.....	635	100	20 00
Mason, Thomas.....	798	50	10 00
Mason, Thomas.....	926	100	20 00
Meyers, A., Trustee.....	908	100	20 00
Neal, C. S., Trustee.....	854	100	20 00
Noble, H. H., Trustee.....	903	50	10 00
Page, Nathl., Trustee.....	60	33	6 60
Page, Nathl., Trustee.....	60	100	20 00
Parker, W. C., Trustee.....	658	100	20 00
Pupat, G., Trustee.....	696	50	10 00
Richardson, E. A., Trustee.....	889	80	16 00
Richardson, E. A., Trustee.....	890	72	14 40
Richardson, E. A., Trustee.....	905	100	20 00
Smith, Phil N., Trustee.....	120	10	2 00
Soren, Geo S., Trustee.....	828	50	10 00
Soren, Geo S., Trustee.....	830	50	10 00
Soren, Geo S., Trustee.....	850	100	20 00
Sleeper, Geo S., Trustee.....	876	100	20 00
Tibbey, E. S., Trustee.....	885	1	20
Uhler, J. Clem, Trustee.....	636	100	20 00
Uhler, J. Clem, Trustee.....	639	100	20 00
Uhler, J. Clem, Trustee.....	640	100	20 00
Uhler, J. Clem, Trustee.....	641	100	20 00
Uhler, J. Clem, Trustee.....	644	100	20 00
Westerhold, Chas.....	808	100	20 00
Williams, Henry, Trua.....	671	100	20 00

And in accordance with law, and an order of the Board of Trustees, made on the 4th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the company, Room No. 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, on Monday, the 27th day of November, A. D. 1871, at the hour of 1 o'clock P. M., of said day, to pay said delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **JOSEPH MAGUIRE, Secretary.**  
Room No. 2, Express Building, northeast corner California and Montgomery streets, San Francisco, Cal. nov-15w

**Ophir Copper, Silver and Gold M. Company—Location**  
of works, Ophir, Placer County, Cal.  
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 23rd day of October, 1871, an assessment of sixty (60) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, R. G. Brush, Office, No. 314 California Street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 25th day of November, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 18th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **R. G. BRUSH, Secretary.**  
Office, 314 California Street, San Francisco, Cal. nov-15w

KNOWLES' PATENT STEAM PUMP.

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The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.  
The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.  
The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

**CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,**  
SACRAMENTO, CAL., April 14, 1871.  
A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.  
Yours truly,  
**A. J. STEVENS, General Master Mechanic.**  
**OFFICE OF PEOPLE'S TRANSPORTATION CO.,**  
PORTLAND, OREGON, April 22, 1871.  
Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.  
Yours respectfully,  
**G. MARSHALL, Chief Engineer.**

**OFFICE OF N. Y. CENTRAL R. R., ALBANY, JUNE 3, 1871.**  
Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.  
Yours very truly,  
**C. P. HARM.**  
**OFFICE OF DELAMATER IRON WORKS, NEW YORK, MAY 26, 1871.**  
Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.  
Yours very truly  
**GEORGE M. REYNOLDS, Supt. Engineer.**  
**U. S. NAVY YARD, NEW YORK, JUNE 3, 1871.**  
Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.  
Yours very respectfully,  
**WM. W. WOOD.**

**OFFICE OF THOMAS IRON WORKS, HOKENDAUQUA, Pa., JUNE 1, 1871.**  
Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "This Knowles Pump" to any who may have use for a first-rate Steam Pump.  
Respectfully yours, etc.,  
**EDWIN MICKLEY, Supt. of Mines.**  
**OFFICE OF THE SAUCON IRON CO.,**  
HELLERTOWN, NORTHAMPTON COUNTY, Pa., May 26, 1871.  
Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnaces and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given very great satisfaction, and that we like them better than any we have ever used.  
Yours very respectfully,  
**G. W. WHITAKER, President and Superintendent.**

**OFFICE OF NEW HAVEN WATER CO., DEC. 18, 1869.**  
Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.  
Yours very truly,  
**P. SAULT, Superintendent.**

**OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, JUNE 11, 1871.**  
A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc.,  
**JOHN CLEMENTS, Engineer.**

WE BUILD AND HAVE CONSTANTLY ON HAND  
THE LARGEST STOCK OF PUMPS IN THE WORLD,  
And for Every Conceivable Purpose.  
**A. L. FISH, Agent.**  
No 9 First Street, San Francisco, Cal.  
P. S.—All kinds of new and second-hand Machines on hand. 24v22-eww

**Mina Rica Mining Company—Location**  
of works, Auburn District, Placer County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of November, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 18th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **GEO. R. SPINNEY, Secretary.**  
Office, Room No. 2, third floor, 418 California street, San Francisco, California. nov-15w

**Nevada Land and Mining Company—Location**  
of works, Spruce Mountain, Antelope, Clifton and Johnson and Latham District, Elko County, State of Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Joseph Klopentstine, unissued		2000	\$80 00
And in accordance with law, and an order of the Board of Trustees, made on the 12th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, Cal., on the 4th day of December, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.			

**WM. H. WATSON, Secretary.**  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. nov-15w

**Piermont Milling and Mining Company—Location**  
of works, Piermont Mining District, White Pine County, Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 4th day of September, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
Briggs, Chas A.....	15	584 3/4	\$729 17
Briggs, Edgar.....	11	50	62 50
Caulfield, Jerry.....	20	1750	2187 50
DeForest, J.....	7	600	625 00
DeForest, J.....	8	600	625 00
DeForest, J.....	9	500	625 00
Emart, Michael.....	18	1750	2187 50
Fussler, Louis.....	1	750	937 50
Fussler, Louis.....	12	700	875 00
Fit, Benj.....	6	1750	2187 50
Godfrey, Richard.....	19	2625	3281 25
Hutchinson, Wm T.....	10	683 3/4	729 17
McClure, E O.....	17	683 3/4	729 17
Perkins, J E.....	4	1750	2187 50
Perkins, J E, Trustee.....	21	1000	1250 00
Perkins, J E, Trustee.....	22	1500	1875 00
Perkins, J E, Trustee.....	23	1000	1250 00
Tilden, H N.....	5	600	625 00
Willson, James.....	13	1750	2187 50
Willson, James.....	14	875	1093 75

And in accordance with law, and an order of the Board of Trustees, made on the 6th day of October, A. N. 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 418 California street, San Francisco, Cal., on Friday, the 8th day of December, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
nov-15w  
**J. W. CLARK, Secretary.**

**Pocahontas Gold Mining Company—Location**  
of works, Mud Springs, El Dorado County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of September, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Am't.
L. A. Booth, Trustee.....	49	100	\$300 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of September, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 26, Hayward's Building 419 California street, San Francisco, California, on Monday, the 27th day of November, 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
**D. A. JENNINGS, Secretary.**  
Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal. nov-15w

**Seaton Mining Company—Location**  
of works, Drytown Mining District, county of Amador and State of California.  
Notice is hereby given, that at a meeting of the Trustees of said Company, held on the 27th day of October, 1871, an assessment of \$20 per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 438 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 15th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 30th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees, **JOEL E. LIGHTNER, Secretary.**  
Office, at No. 438 California street, San Francisco, California. nov-15w

**Starlight Gold and Silver Mining Company**  
Location of works, Humboldt County, Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of November, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 15th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 2d day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, **DAVID WILDER, Secretary.**  
Office, No. 24 Merchants' Exchange, California street, San Francisco, Cal. nov-15w

**Stockholders' Meeting—The Annual**  
Meeting of the stockholders of the North American Consolidated Mining Company, for the election of Trustees for the ensuing year, and for the transaction of such other business as may lawfully come before it, will be held at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 4th day of December, 1871, at 2 o'clock P. M.  
nov-15w  
**WM. H. WATSON, Secretary.**



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

## Steam Engines and Boilers,

MARINE AND STATIONARY,

## IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m

GODDARD &amp; CO.

## FULTON

## Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

## STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hynes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above How street, San Francisco.

3-qy

GEORGE T. PRACY,  
MACHINE WORKS,109 and 111 Mission Street,  
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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

## STEAM ENGINES,

Flour and Saw Mills,  
QUARTZ MACHINERY,  
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR  
Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.  
4v23tf

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## Rolling Mill Company,

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Established for the Manufacture of  
RAILROAD AND OTHER IRON

Every Variety of Shafting,  
Embracing ALL SIZES of  
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

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Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron. 9v143m

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## EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

## LIGHT AND HEAVY CASTINGS,

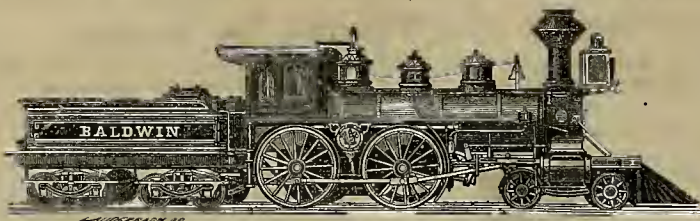
of every description, manufactured 24v16qr

Miners' Foundry and Machine Works,  
CO-OPERATIVE,  
First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

I. L. MORTLHAP, President. 7v28tf

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M. BAIRD &amp; CO., Philadelphia,

## MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

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## NORTH-WESTERN MANUFACTURING COMPANY,

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STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE,  
Brass and Iron Goods for Steam and Gas Fitters and Engine Builders,  
Cast Iron and Malleable Iron Fittings and Castings.

## STEAM WARMING AND VENTILATING APPARATUS

for public and private buildings. Hoisting Machines of approved patterns. Send for Illustrated Catalogue.

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## To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

## THE GRICE &amp; LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and endorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. & L. were the PATENTEES and BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

## THE RISDON

## Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.  
CAPITAL.....\$1,000,000.

## LOCATION OF WORKS:

Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors: Wm. Alvord, C. J. Brenham, C. E. McLane,  
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James D. Walker.

WM. H. TAYLOR.....President.  
C. E. McLANE.....Vice President.  
JOSEPH MOORE.....Superintendent.  
LEWIS R. MEAD.....Secretary.

J. O. CALDWELL, President.  
REESE LLEWELLYN, Superintendent.

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## Co-operative Foundry Company,

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133 and 135 Beale Street, between Mission and Howard SAN FRANCISCO.

Manufacturers of  
MACHINERY AND CASTINGS  
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Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice. 23v21-3m

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Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, &c. Orders left with O. W. WHITE, 47 Clay Street, JOS. THORNHILL, 1612 Mason St., near Green, will be promptly attended to. 24v21-3m

UNION IRON WORKS,  
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WILLIAMS, ROOT &amp; NEILSON,

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## STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

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AGENTS FOR

## Thomas Firth &amp; Sons' Cast Steel.



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Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.  
13 and 15 Fremont street, near Market, San Francisco 10v14qr

## SEVERANCE HOLT &amp; CO.,

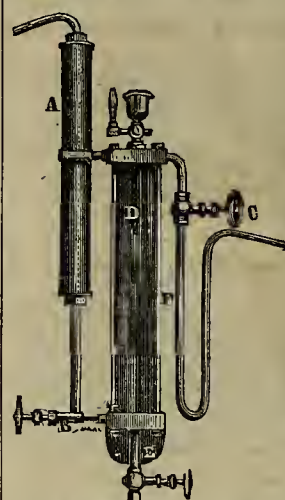
MANUFACTURERS OF

## Diamond-Pointed Drills

AND DRILLING MACHINERY,  
For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading, Submarine Blasting, Deep Boring for testing the value of Mines, and Boring Artesian Wells. Office, Room 16, No. 315 CALIFORNIA STREET, San Francisco. 25v20-3m

## Machinery.

## GARRATT'S CONDENSING LUBRICATOR,



Or "TALLOW CUP." This is a California Invention, and the BEST and Most Economical Lubricator in use. It keeps cool, and its operations are very readily observed. Send for Circular to W. T. GARRATT, Cor. Mission & Fremont streets, San Francisco.

DESCRIPTION:—D, is a glass chamber which contains the lubricant. O is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted siphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the election of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and O.

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

## THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

## IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

## DO NOT BE DECEIVED

by the cry of "Humbag," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.  
For further particulars address

FURMAN R. WILSON,  
San Francisco.

## Longshore's Combination Tool.



This device is just what its name indicates. As a KITCHEN Tool, it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nail Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

WIESTER &amp; CO.,

17 New Montgomery street (Grand Hotel),  
SAN FRANCISCO.



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FISHER'S KNUCKLE JOINT AND NOZZLE.

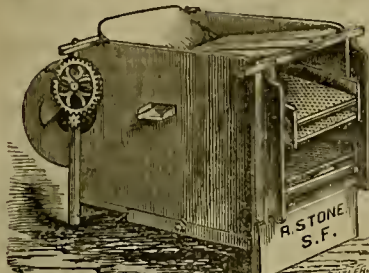
Is the Best Hydraulic Machine in Use.



MACHINES MANUFACTURED TO ORDER,  
to throw from one to an eight-inch Stream.

9v23-1f Address F. H. FISHER, Nevada, Cal.

THE PATENT  
Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.  
For further information apply to  
R. STONE,  
25v22-3m 422 Battery street, San Francisco.

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MOLDING, MORTISING,  
TENONING AND SHAPING  
MACHINES,  
BAND SAWS,  
SCROLL SAWS,  
Planing & Matching  
MACHINES, ETC.,  
For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.  
Superior to any in use.  
J. A. FAY & CO.,  
11v23-6m CINCINNATI, OHIO.

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Protrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

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REAPER AND MOWER SECTIONS, BARS  
AND KNIVES COMPLETE.  
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to.  
9v19-4y

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No. 125 First street, opposite Minna,  
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ALL KINDS OF Brass, Composition, Zinc, and Spelter Meta Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gongs of superlative. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch  
PRICES MODERATE.  
J. H. WEED, V. KINGWELL.

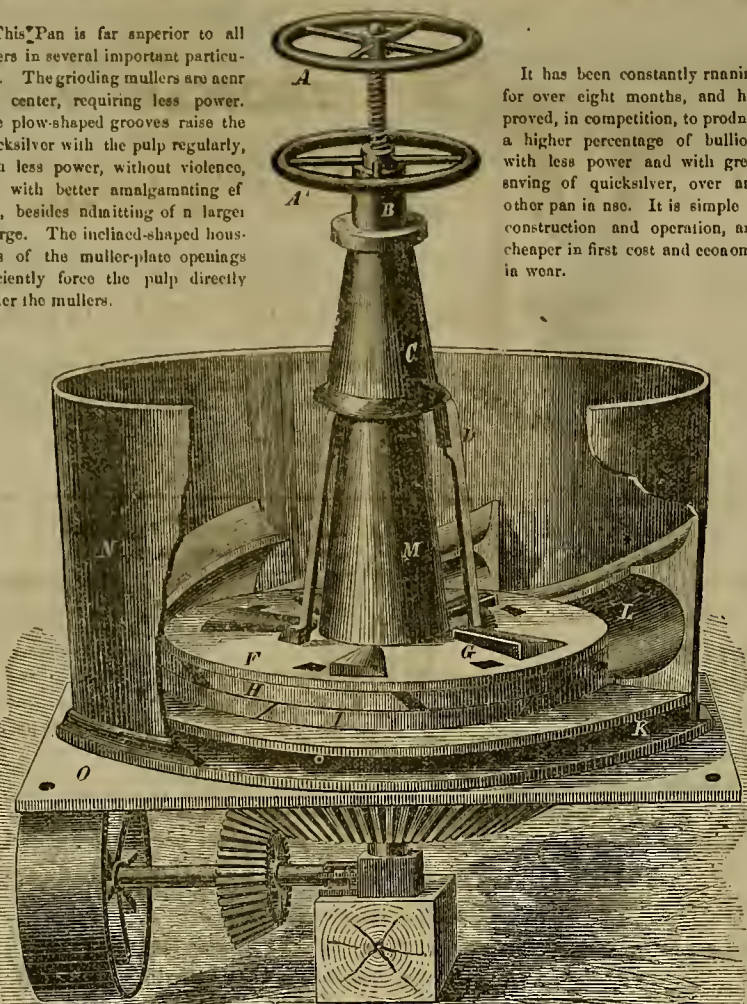
McAFEE, SPIERS & CO.,  
BOILER MAKERS  
AND GENERAL MACHINISTS,  
Howard st, between Fremont and Beale, San Francisco.  
2v21-1f

J. M. STOCKMAN,  
Manufacturer of  
PATTERNS AND MODELS,  
(Over W. T. Garratt's Brass Foundry).  
Entrance, No. 129 Fremont street, San Francisco.  
6v23-3m

CAST IRON PIPE,  
FOR WATER AND GAS.

PIPE of all sizes, of a very superior quality, is now being made at the  
Pacific Iron Works,  
In this city, under the Patents of Farrar & Whiting.  
17v23-3m GODDARD & CO.

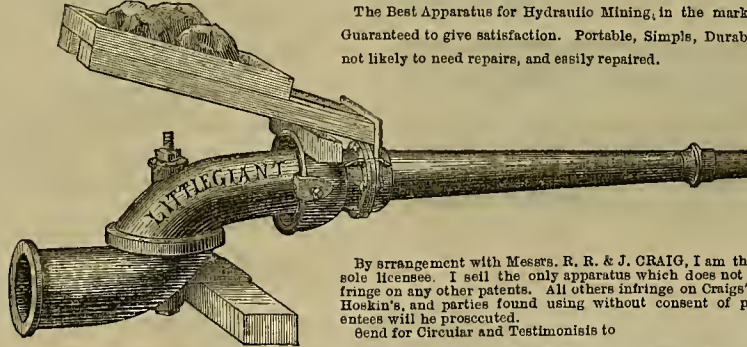
STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.



This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a large charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.  
It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.


Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.  
Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation.  
15v20-1mr, 1sm1f

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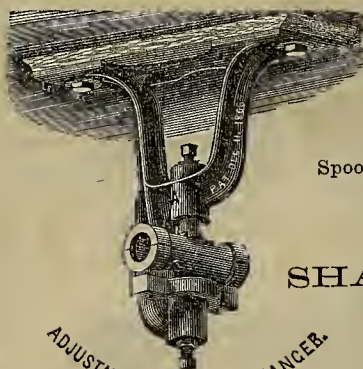
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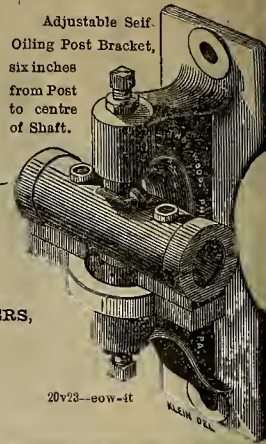
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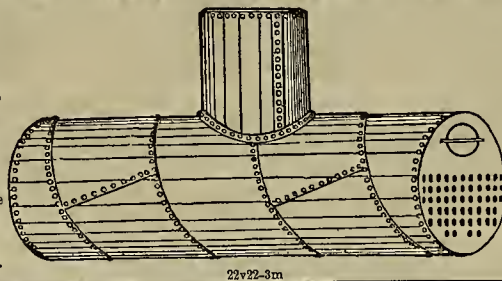
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BY DEWEY & CO.,  
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SAN FRANCISCO, SATURDAY, NOVEMBER 25, 1871.

VOLUME XXIII.  
Number 21.

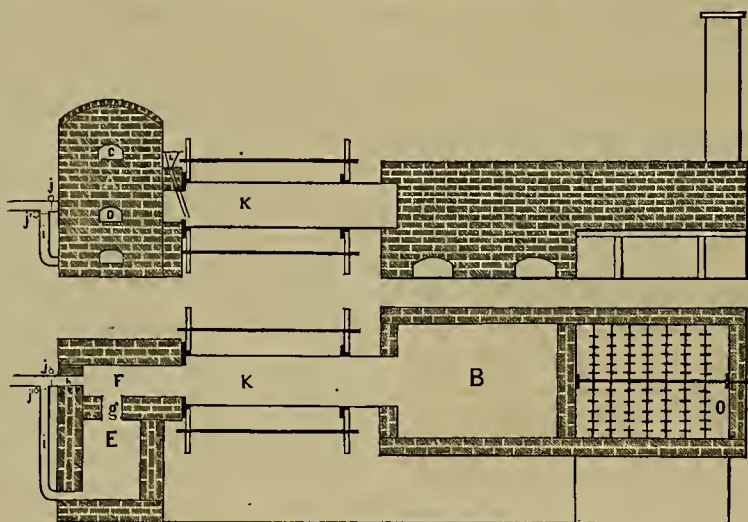
## Ambler's Blowpipe Furnace.

Our illustration represents an improved furnace for smelting and roasting ores, invented by Stephen F. Ambler, of Monitor, Alpine Co., Cal. The main principle in this furnace which differs from those of ordinary construction, is that a stream of heated air is passed into the ore without any loss of oxygen by combustion, and that the wood is converted into charcoal before it reaches the fires, to be used as fuel. These are two important points. Generally when air is introduced it passes through the fire, thereby losing a large proportion of its oxygen; by the use of this furnace all of it is utilized, from the fact that it is merely heated, not burned. This excess of oxygen prevents concentration or melting of the sulphurets in the cylinder, another point of great importance. When the ore contains a large proportion of sulphurets, the heated air may be passed over it by means of the blower and pipes and they may become more completely oxidized, whereas if only a small proportion of sulphurets are present, the air can, by means of the dampers, be turned under the grate into the fire. These drafts can be regulated at will to throw either all, or a certain proportion of, the air in the direction required, either into the fire or the revolving cylinder containing the ore, according to the class of ore under treatment. In order to explain this more fully reference is made to the accompanying cuts, of which Figure 1 is a side elevation, and Figure 2 a plan.

A, represents the furnaces, constructed of brick in the usual manner of furnaces, which is provided with a grate over the lower door and above which is the carbonizing chamber, E. This chamber is kept constantly filled with wood which is fed through the upper door, C. When the doors, C and D, are closed, the wood in the upper part will be carbonized or converted into charcoal, and, as the fire below burns out, the charred or carbonized wood will settle down and continually feed the fire. At the back of the chamber, E, is a hot air chamber, F, into which the heat, gases and flame from the chamber, E, pass through the flue, g. A blast pipe, h, enters the chamber, F, at about an equal height with the flue, g, while a branch pipe, i, passes to the front and enters the chamber, E, so as to deliver its blast directly under the fire in the grate. The blasts from these pipes are regulated by dampers, j, j'. When the damper of the pipe, h, is closed and the damper, j', opened, the blast will be delivered upon the grate and a reducing flame produced which will pass through the flue, g, into the chamber, F; and when the damper, j, is opened, oxygen will be supplied to the revolving cylinder, K, which contains the ore, through the chamber, F, and an oxydizing heat produced. In communication with the chamber, F, opposite the blast pipe, h, is the revolving cylinder, K, into which the ore is fed through the hopper, L, so that as the ore meets the blast and heat from

the chamber, F, it will be carried into the revolving cylinder and there subjected to heat and roasted while passing through. In connection with the furnace, A, and revolving cylinder, K, is the dust chamber, B. The heavy ore passes from the cylinder, K, into this chamber and is taken away from the doors below. The light dust is carried by the current of air against the revolving perforated discs in O, one half of which are submerged in water. These discs permit the passage of air, but the wet surfaces catch the dust, which, by the revolution, is carried under the water and washed off into the vat below where it can be taken out when required.

The process of feeding the wood into the closed chamber where it may be subjected to heat without air is an important improvement, and as can be seen it will descend to the fire as it is needed. The cyl-



AMBLER'S BLOWPIPE FURNACE.

inder is worked by friction gearing. This invention was patented through the SCIENTIFIC PRESS Agency, by the above named gentleman, who can be addressed, for further information concerning it, at our offices.

**IMPORTANT MINING SUIT DECIDED.**—The great mining suit of the Eureka Mining Company against Aspinwall, of New York, and others, was decided on the 19th inst., at Provo, by a jury, for the plaintiff. The contest was for the title to the King David mine. The next trial, which commences immediately, is for the Mai Henrietta. Both mines are immensely valuable, and the suits in regard to them are the most important that ever occurred in Utah.

**ENGLISH PATENTS.**—According to the British Commissioners of Patents Journal, eight British patents were granted to residents of San Francisco in the year 1867; twelve in 1868; and thirteen in 1869—making a total for the three years of thirty-three. Average number, therefore, per year, eleven.

## Academy of Sciences.

The Academy met last Monday evening, President Blake in the chair. J. A. Whiting was elected a member. Dr. George Hewston was elected Secretary, to fill the place of B. J. Avary—resigned. Several contributions to the library were received.

A letter was received from Mr. Romero, of Mexico, containing a specimen of fibre very similar in appearance to the ramie. This fibre is stronger than cotton, and used to a great extent in Mexico. It grows in great quantities on the coast. It is an annual, and Mr. Morrell thought it might be grown with success in Lower California. He had experimented with it in latitude 18° 30', and also with the ramie, and thought it could be cultivated with as much success as the ramie.

Hot Spring Deposits in Humboldt, Nevada.

and yet this process can only have been going on during the present geological epoch, or since the surface of this portion of the globe has been subject to any disturbance.

The earth is made up of fine particles of clay and sand, with, he thought, fully a third of diatoms. It also contains many silicious concretions and as he was convinced from the formation of the ground that these would not have been carried there by water, he concluded that they must be silicified organic remains. On making a thin section of one of these concretions, the microscopes showed that this was the case, a pair of legs of some coleopterous insect being plainly visible in the quartz. The greater part of the concretion seemed made up of petrified algae. It is impossible to say without further exploration, how far this deposit of diatoms extends.

## Remarkable Plant.

Mr. W. G. W. Hartford submitted a remarkable plant from San Miguel Island, which is about 30 miles off the coast from Santa Barbara. It is known to science as *Leptosyne Maritima*. It also abounds on Santa Catalina Island off the coast of San Pedro. The peculiarity of this particular specimen consisted in its enlarged size and general robust appearance, when contrasted with that of the same species grown on the main land in Santa Barbara county, near the coast, where it is a fine golden flower two or three inches in diameter with a stem about the size of a quill. The one exhibited differs greatly in size, so much so, that aside from close botanical alliance no one would casually suspect any kindred or special family resemblances. Dr. Kellogg said that this plant exhibited a marked and peculiar example of the fact that plants would harmonize themselves with the surrounding conditions of nature, and, so to speak, acclimatize themselves. This section of the body of this one was from three to five inches in diameter, with concentric rings of annual growth, with an inch in diameter, and limbs like a broom handle. On the coast it is a sub-perennial herb. No plant possessing so much interest to the floriculturist has ever been brought before the Academy.

Dr. Hewston asked if Dr. Kellogg thought this plant gained additional strength by reason of its growing in an exposed position where it was subjected to heavy winds. He called attention to the fact that, as a rule, the heaviest bodied vegetation grows on the sheltered sides of hills.

Dr. Kellogg thought that observation did not apply to all vegetation, but that this species and several others which he named were not affected unfavorably by hard winds. He thought that, as a rule, the vegetable as well as the animal kingdom adapted itself to climatic and other circumstances.

**RAILWAY CONSOLIDATION IN ENGLAND.**—The English are not much behind our people in railway consolidations. A consolidation has just been effected of 2,000 miles of road and \$400,000,000 of capital. The company expects to do one-fifth of the entire railway business of the kingdom.

**PROFESSOR TENNY,** of Dartmouth College, has recently discovered seventy new bright lines in the spectrum of the sun's chromosphere.

THE footprints of inventors are the foot-holds of progress.



# MECHANICAL PROGRESS.

## A New Kind of Wall.

A new kind of wall is coming into use in England, the advantages claimed for which are the very important ones of non-absorbency of moisture, non-conduction of heat, economy of space, a washable surface, and withal cheapness. Over a framework of strong cross wires, of about one-eighth of an inch thick, there is woven, by a powerful pressure, fibrous matter, which is saturated with a solution that renders it fireproof. It is then subjected to a very powerful pressure. A coating of light Scott's cement is then put upon it for inside facing, and of Portland cement for outside facing. By this means surfaces are made impermeable to moisture, smooth, and easily washed with water; thus saving the expense of repeated lime-washings. It is formed into slabs in iron frames, which are put together and closely and securely fastened with bolts. The slabs are from one and a half to four inches thick. They are found to serve as superior panelling for dividing walls and partitions. Where space is of importance, it has the advantage, perhaps, over concrete walling, in enabling a wall to be made of not more than one and a half or two inches in thickness, and yet its quality is said to greatly deaden sound.

**ITALIAN SUBMARINE EXPERIMENTS.**—An Italian named Foseli, has lately been experimenting, and successfully, with a new submarine vessel of his invention, in the presence of leading men of the Italian naval, scientific, and civil services. The invention consists of a construction of wrought-iron plates divided into three compartments, of which the lowest contains 1,000 pounds of ballast; the second or middle chamber is prepared to accommodate two persons; the third or uppermost chamber is filled with compressed air. This compressed air, by means of ingenious machinery, is capable of supplying means sufficient to sustain the life of two persons 50 hours.

At one of the late experiments, this vessel descended to a distance of 33 fathoms below the surface of the water, and remained submerged for 22½ minutes, without the slightest discomfort being experienced by the navigators. The specific gravity of the ballast serves to retain the vessel in an upright position, and peculiarly simple machinery enables it to move in any direction. An attached illuminating arrangement renders objects within a large area perfectly visible. The intention of the inventor is to have four machines of different capacities; one for coral fishing, another for sponge and pearl fishing (requiring a deeper descent), another for exploring unken vessels, and lastly, one for scientific investigation and warlike purposes. —*Artisan.*

The fact that life can be sustained below water for an entire day, or even longer, by means of an occasional spray of water within the vessel or diving-bell, as indicated in the Ryesson patent, has been fully established years ago, by experiments in New York harbor. This mode is much simpler and less costly than by the compressed air arrangement, as above described.

**RUSSIAN SHEET IRON** has been recently subjected to chemical examination in the metallurgical laboratory of the Royal School of Mines, and the analytical work has been executed by Dr. Percy's assistant, Mr. W. J. Ward. The occurrence of a peculiar carbonaceous mass, left after the solvent action of dilute hydrochloric or sulphuric acid, may reasonably be accounted for, Dr. Percy says, by the method of manufacturing Russian sheet iron, which he describes. The sheets are interstratified with charcoal powder, and bound up in packets, each of which is subjected to repeated hammering. Hence, it is easy to conceive how fine particles of charcoal should be beaten in over both surfaces of each sheet; and, if this be so, a relatively larger proportion of carbon should exist in the thin sheet, as is the case. Yet, that some of the carbon is combined, may be inferred from the fact that distinct hardening occurs after heating the metal to redness, and immersing it while hot in water, and especially in mercury.

**A NEW ICE MACHINE.**—It is said that a Prussian engineer has invented a machine which will produce ice without chemicals, merely by the compression and expulsion of air. A machine makes two tons of ice per day, and the capacity can be increased to 20 tons.

**IMPROVED PROCESS FOR MAKING TUBES.**—In making iron tubes, Mr. H. Kesterton, Birmingham, reduces pig-iron to the state of soft malleable iron by the Bessemer or other similar process, and casts it into a hollow cylindrical ingot. He takes this ingot while still very highly heated, and passes it through a series of pairs of grooved rollers set in different planes—say, alternately vertical and horizontal. The first pair of rolls takes the ingot, and reducing and elongating it, passes it to the second pair immediately beyond, and this pair passes it to a third pair, and so on, until the desired reduction is obtained. Each successive pair of rolls is driven at a surface speed greater than that of the rolls immediately in front, so that, allowing for the elongation of the tube, and the reduction of the section, equal quantities of metal may pass between all the pairs of rolls, gripping the ingot in equal times. A stationary mandrel passes between all the rolls, and carries a bulb at the nip of each pair of rolls.

**A NEW IRON PROCESS.**—The *Iron Age* notes a new iron process, now being practically tried—in the neighborhood of Pittsburgh, we presume. The ideas of the inventor, who have patented their process, are that iron ore can be reduced without the admixture of coal or the use of a blast, all the metallurgists to the contrary notwithstanding. The peculiar process consists in conducting a volume of steam, at the same pressure as that of the ordinary blast, into and over a coke fire, there decomposing the steam and reducing the ore by the additional heat, while sulphur and phosphorus are eliminated by the hydrogen, in the form of sulphuretted and phosphoretted hydrogen. No specimens of product yet on hand; when there are, they will be on exhibition in New York. Whether successful or not, says the *Age*, a trial furnace of a working size is being built, and the matter will soon be an accomplished fact or another fizzle.

**STEEL HORSESHOE NAILS** are proposed by a Canadian inventor—the metal being formed for this purpose into bars by rolls, which reduce the steel to any desired thickness; and as steel is homogeneous, the plates can be cut in any and every direction. This being the case, instead of cutting sections, as when iron is used, the inventor makes strips of indefinite lengths from the steel, with the heads on both sides of the strips, and which are therefore entirely unlike the corrugated iron heretofore rolled for the ordinary horseshoe nails. This is considered quite an improvement; but though a variety of devices have from time to time been brought forward for producing a nail more perfectly adapted to ensure strength and durability to the shoe than has hitherto been the case by the old hand methods, it does not appear that the pointing of the nails in a superior manner, is, as yet, satisfactorily accomplished by machinery.

**A REMARKABLE SAW.**—The *Iron Age* speaks of what is called the "Lightning Saw," as follows: "A chestnut log, nine inches in diameter, was sawed off with his cross-cut saw, by two men, in three and three-quarter seconds, by three and a half strokes of the saw. It was then sawed across sixteen times in two minutes and sixteen seconds, or faster than a cord in nine minutes, including lost time. This saw differs from all the well known clearing teeth saws in use. Its teeth are all beveled blades for cutting, while clearing teeth are dust removers merely, requiring to be shortened, and are left full thickness of saw plate, as they do no cutting. The Lightning Saw is designed to cut timber by direct action both ways. This is accomplished by the form, spacing, dress and setting to cut in line of the two points of each M as one tooth. If one point of M tooth was set one way and one the other, the slant would ride and lift out the tooth.

**EFFECT OF COLD ON IRON AND STEEL.**—For many years, until quite recently, it has been almost an axiom among civil engineers that great cold tended to produce a brittle condition of iron and steel, and that by this hypothesis might be explained the alleged increase in the breakage of trees, axles and rails in railroad traffic.

According to the recent experiments of Joule and others, however, it would seem that iron and steel instead of being weakened by freezing weather, are actually capable of resisting greater shocks than when retained at a summer temperature. While not denying the fact of the greater frequency of such railway accidents in winter, Dr. Joule refers them to the increased hardness of the ground by freezing, by which the iron is subjected to a greater strain or shock than in summer.

# SCIENTIFIC PROGRESS.

## The Cause of Volcanoes.

The opinion of the old Werneriens, that volcanoes are due to chemical action, and not to supposed central fires, appears to be gaining ground. The question whether we are living on the cooled surface of a globe of molten liquid matter, with a thin shell of only 50 or 80 miles in thickness, or whether the earth is firm and solid to the depth of 1,000 miles or more to its very centre, is of no little interest to many timid minds, on the score of personal safety; but the chief importance to the scientist is the relation which the question bears to the character of volcanoes—whether they are fed from internal fires, or whether their most remarkable phenomena are the local and comparatively insignificant results of chemical action.

During the latter portion of the late Imperial rule in France, the former theory was quite in the ascendant in that country, kept so through the teachings and writings of M. Elie de Beaumont, who, by Imperial favor, was continued as the chief director of the French official geologists; although his opinions were not in unison with most of the distinguished French scientists. The fall of the Empire led to a change in this direction, and to a decided reaction in favor of the chemical theory of volcanic disturbances; which opinion has long been quite general among German and English geologists.

M. Fouque publishes an article in the April number of *Revue des Deux Mondes*, in which he takes strong ground in favor of the chemical theory, and endeavors to show that there is a complete series of gradations between the simple phenomena of the emission of inflammable gas, and the thermal *fumerole*, that nearly approaches to the true volcano—that the mere emission of gas may pass into the mud volcano, and the latter into the thermal *fumerole*; while the characteristics of the lost alternate with those of full volcanic action, in nearly every known volcano.

The usual products of volcanoes are just what would be expected were chemical action their cause. Indeed the peculiar action of the products, according to M. Fouque, is hard to explain on the theory of an igneous nucleus.

If the crust of the earth is but 50 miles in thickness, however hard it may be, it would, considering the immense diameter of the earth, be almost as elastic as a soap-bubble, while the interior fluid mass would be subject to tides like the ocean. The result would be that we should have regular earthquakes twice a day, all over the earth. This not being our experience, the theory of the 50-mile crust must, say the Werneriens, be given up as untenable, and we are compelled to fall back on the chemical theory for an explanation of the origin of volcanoes and earthquakes. Although most astronomical and physical reasoning has been introduced in efforts to solve the great question connected with volcanic phenomena, still, it must be admitted that the evidence thus far adduced is quite insufficient for fully sustaining either assumption. Daring generalizations are as unphilosophical in physics as in politics; hence the folly of dogmatism, regarding the origin of volcanoes or the theory of internal heat.

**PURIFICATION OF FATS.**—The *Comptes Rendus* gives an account of a process communicated to the French Academy by M. Boillet. Suet, or fat of any kind, is heated for three or four hours with lime water, the proportions being about half a gallon of lime water to 2½ lbs. of fat; it is then allowed to cool. As soon as the fat is sufficiently set, it is transferred to a linen or flannel bag, and the water and oleic acid squeezed from it by gradually increasing pressure, in a hydraulic press, or otherwise. He states that fatty matters thus treated lose all bad smell, and acquire remarkable whiteness and hardness, after standing a few days. If re-melted in water, acidulated with sulphuric acid, acetic acid, or vinegar, a fat is obtained which is "perfectly" purified, and can be applied to all purposes for which the best fats are employed.

**TEST FOR BENZOLE.**—For distinguishing genuine benzole, or that made of coal-tar, from that prepared from petroleum, Brandberg recommends us to place a small piece of pitch in a testing tube, and pour over it some of the substances to be examined. The genuine will immediately dissolve the pitch to a tar-like mass, while that derived from petroleum will scarcely be colored.

## The "Psychic Force."

Dr. Crooks, in the last number of the London *Quarterly Journal of Science*, gives an elaborate article to sustain his alleged discovery of what he calls "psychic force," and details some further experiments, in addition to those given in a previous number of that journal, some account of which we reproduced in the Press in our issue of August 26th, 1871.

He braves the storm of ridicule which he has invoked, with a boldness and spirit of candor which shows that he is an earnest man, and one determined to persevere in his line of investigation without fear or favor. His position as a scientist, is acknowledged intellectual attainments and power, and the spirit of candor which he manifests under peculiarly trying circumstances, cannot fail to command the respect of all who are following him in his investigations, whether in a spirit of sympathy or with the view of criticism.

His latest experiments were conducted with more caution than those first published, while their apparent results are even more remarkable. In his last communication he remarks that so far as his other occupations will permit, he proposes to continue his experiments in various forms, and report from time to time their results. In the meanwhile he hopes that there will be induced to pursue similar investigations in a scientific manner.

The Doctor applies some caustic remarks to the tender skin of Prof. Stokes, who presumes upon a severe criticism of the experiments, while he refuses to witness them in person, when he has ample opportunity and is urged to do so.

We shall watch with interest the progress of these experiments and the discussions which grow out of them, and report, thereupon, whenever anything definite or of special importance shall have been eliminated.

## Mechanical Effect of Magnetization.

The following is from a lecture by Prof. Tyndall:—"The effect I wish to make manifest was discovered by Mr. Joule, and was subsequently examined by MM. Dela Rive, Wertheim, Marian, Matteucci, and Wartmann. It is this:—At the moment when the current passes through the coil surrounding the electro-magnet, a click is heard emanating from the body of the iron, and at the moment the current ceases a click is also heard. In fact, the acts of magnetization and demagnetization so stir the particles of the magnetized body that they, in their turn, can stir the air and send sonorous impulses to our auditory nerves. The sounds occur at the moment of magnetization, and at the moment when magnetization ceases; hence, if a means be devised of making and breaking, in quick succession, the circuit through which the current flows, we shall obtain an equally quick succession of sounds. I do this by means of a contact-breaker which belongs to a Ruhmkorff's induction coil. A thin bar of iron stretches from one of the bridges of this monochord to the other. This bar is placed in a glass tube, which is surrounded by copper wire. The contact-breaker is placed in a distant room, so that you cannot hear its noise. The current is now active, and every individual in this large assembly hears something between a dry crackle and a musical sound issuing from the bar in consequence of its successive magnetization and demagnetization."

**AN EIGHTH RIB IN MAN.**—Mr. Perrin makes a communication to *Nature* in regard to the occasional occurrence of an eighth true rib in man; although it has been generally considered that even form the absolute limit. This eighth rib is sometimes found on one side only, still more rarely on both sides, and it is suggested by Mr. Perrin that cases of this abnormal character possibly occur more frequently than has been suspected. The maximum normal number of sternal ribs appears to be ten, but in the higher primates the tenth, ninth, and eighth are successively lost in the transition from their lower to the higher forms. In the carnivora the sternal ribs are usually nine, although the Esquimaux dog, the Arctic wolf, and the *proteles* have only eight. The common badger of Europe has ten true ribs.

**STILL ANOTHER.**—In our notice of the recently discovered asteroids in last week's Press, we inadvertently omitted the most recently discovered one—the 117th, which was made on the 14th of Sept. by Dr. Luther Bilk. It was equal in brilliancy to a star of the 11th magnitude.



## THE WATER QUESTION.

By A. B. BOWEN, CIVIL ENGINEER.

(Concluded.)

## The Common Practice

is, to remove the sod from the base of the levee and surface of the ditch, to the depth of about six inches, and lay it away for the facing of the sides; and when these are well beaten into place with the back of the shovel, the levee becomes so matted with roots and covered with grass as to withstand a considerable action of the waves which usually effect it only for a few hours at any one time. But this facing of the sides is expensive, and much less valuable here than where there are frequent summer showers; for such is the aridity of our climate, that these sods seldom take root, and on the tule lands, where this practice is not much in vogue, frequently dry up and float away; though very low levees, constantly washed by the tides, retain sufficient moisture to become sodded over.

The ditch should be on the inside, so as to serve for drainage, and not be exposed to the action of waves. If only for the discharge of waters of filtration, and the rainfall on the marsh itself, the floodgates may be few and small.

The salt marsh along the southern portions of the Bay of San Francisco, being less exposed to the action of storm waves, will need less protection, and other things being equal, can be reclaimed at less expense.

## Swamp Land Irrigation.

Let it be borne in mind, however, that the soil of all reclaimed swamp land, whether salt or fresh, is so poorly adapted to the retention of moisture as often to suffer from drouth even in lands of frequent summer rainfall, and is almost valueless in dry climates, without irrigation. Paradoxical as it may seem it not unfrequently requires under drainage also, as is well known to all engineers of experience in this kind of work. Salt marsh, however, is sometimes so constantly wrapped in fog, as to derive much moisture from that, though as a general rule, the fog does not lay low enough to be of much service. We have no reliable information on this point, concerning the marsh of which we have been speaking, but the fogbanks of Tomales Bay hang at an elevation of from fifty to several hundred feet above the water; and the grain on the hill-sides, bathed in fog, make ranker growth, and are two weeks later in ripening than that on the narrow strip below the fog along the shore.

## Conclusion.

Tonching here and there, with utmost heaviness, upon a few only of what may perhaps be termed the more important points on the agricultural side of the question, yet, have we largely exceeded the time and space designed for this article, and must hasten to close, leaving many other points equally important, wholly without notice.

Our leading ideas upon the agricultural hearings of the subject may be summed up, in brief, as follows:

1. Canals of irrigation for both swamp land and upland, constructed only after careful surveys shall have shown their most advantageous location.

And that these italics may not be regarded as a deliberate insult to the intelligence of our readers, we hasten to assure them, that large sums of money, have everywhere been misapplied, and the interests of large localities, sacrificed, by the improper location and construction of works of irrigation, from insufficient surveys; and that, not only in Spain, and Italy, but also in India, where irrigation is most extensively and skillfully practiced, large outlays have been necessary to correct these errors. A notable instance of which is that of the Ganges Irrigation Canal, than which, perhaps no more expensive example of amateur engineering can anywhere be found.

2. Reservoirs through the foothills and mountains, principally as supplemental feeders during low water, to the canals of irrigation and for the irrigation of lands above the reach of the canals; but secondly, for diminishing to some extent, the rise of rivers, and the consequent cost of levees.

3. Catchment drains, to protect basins from the drainage of the uplands; so located and constructed, as to serve for irrigation also.

4. Levees and dams, to exclude the water of rivers and sloughs.

5. The present method wherever practicable, of tidal, fresh water irrigation, through flood-gates properly constructed for this purpose.

6. Thick rows of trees, to shade all the lines of distribution, diminish evaporation, and serve as a partial protection from the scorching winds of summer.

7. Steam pumps, if necessary, to remove surplus water collecting in large basins, from rainfall within their borders, or from springs or filtration.

Though the experience of years, has thoroughly demonstrated that the porous soils of our reclaimed swamp lands, from mountain valleys five thousand feet in elevation, all the way to the sea, everywhere require irrigation, much more than our upland, yet we not unfrequently bear upon the necessity of irrigation on uplands, who scout the idea of our swamp lands suffering from drouth; and this, too, when every time these men, pass up or down the Sacramento, or San Joaquin rivers, they look out upon lands formerly three feet under water, that to their certain knowledge, are now constantly irrigated by the tide. We read of men of old time, that, "having eyes, they see not;" while a later proverb assures us that "none are so blind as they who will not see." It is evident that human nature is still the same.

We assure those interested in this subject, that irrigation, when properly applied, whether upon swamp land, or uplands, has invariably been attended with most satisfactory results. A water rent the past season of \$4 per foot for twenty-four hours, or about \$4 per acre, has enabled farmers in Yolo, to obtain a remunerative crop, from this partial irrigation, where nothing could have been made without it; while two heavy crops have been obtained in Fresno, from a single flooding of the land, previous to putting in the first crop; though the crops upon the adjacent unirrigated land, was a total failure.

Three crops of hay in a single season have been raised in the mountains, yielding eight tons per acre, from an irrigation during the dry season, of about 2,000 cubic feet of water per week; and within the last nine months, sixty bushels of barley, and three crops of alfalfa, yielding one and a half tone per acre per acre, have been grown upon thoroughly irrigated swamp land, and probably two more crops of hay can be harvested within the year—making six crops in all from the same piece of ground.

Both horses and steam have been profitably employed this season in the irrigation of swamp lands above the reach of the tide. One gentleman whom we found pumping water with six horses, for the irrigation of his swamp land, assured us that the value to him, of the water so applied could not fall short of \$100 per day.

As fast as possible we should utilize the drainage, which would at the same time, limit the sudden flooding of our rivers and valleys, and prevent the drainage of the foothills and mountains from sweeping our levees into the river, as has sometimes been the case, heretofore. We need the entire rainfall of the State, for irrigation, and should save all we can.

Build reservoirs, sluiceways, and canals. We need them everywhere; high up the mountain sides,—down in the foothills,—in each little valley. Dam each little creek and cañon. Collect water everywhere, and spread it all over the country. Then will our lands be full of fatness, and our granaries filled to overflowing. Then will our rivers be kept within their channels by moderate embankments, and the irrigation of upland and lowland, the reclamation of swamp land and tide land, and the enrichment of our people go hand in hand.

LAND NOTICE.—Notice has been given that the following township plats were received and filed in the United States Land Office at Sacramento, California, on the 11th inst., viz: Township 7 north, range 7 east; township 14 north, range 11 east; township 14 north, range 10 east. Persons claiming the right of pre-emption in the above-named townships should attend to filing their claims within the three months prescribed by law, otherwise their right of pre-emption will be forfeited upon the odd numbered sections. Within these townships are situated the towns of Forest Hill, Yankee Jim's, Wisconsin Hill, Elizabethtown, Deadwood, and Michigan Bluffs.

REQUEST TO THE DEAF AND DUMB ASYLUM.—R. W. Durham, of Chico, recently deceased, left property to the State Deaf and Dumb Asylum valued at about \$100,000.

## Railroad Items.

The Virginia and Truckee railroad was formally opened, on the 7th inst., from Reno to Steamboat Springs, a distance of twelve miles.

A project is on foot for the construction of a narrow-gauge railroad through Napa Valley, the termini to be Calistoga and a point on Napa Creek, near Suscol. The cost of the road is estimated at \$200,000.

The construction of a narrow-gauge railroad from Petaluma to Sanaclete is being agitated in Sonoma county.

The through passenger trains of the Pacific railroad now run by the Vallejo route. It is said that a double track will be laid from Vallejo to Sacramento within a year.

Turton & Knox have contracted for the grading of the railroad between Healdsburg and Cloverdale, seventeen and a half miles long; and also from Petaluma to Bloomfield. Sonoma county gives a subsidy of \$5,000 per mile, and both must be completed by the 19th of next March.

The directors of the Antioch and Visalia railroad have given instructions to complete the purchase of the right of way, and award contracts for grading and bridging. Sealed proposals for the construction of a wharf at Antioch and trestle work, extending from the wharf to Smith's Point, are advertised.

The agents of the Central Pacific Company have negotiated for and secured the right of way from many land proprietors for a line of road between Oakland and Santa's.

A heavy force of workmen are employed in building the railroad between Gilroy and Salinas City.

The people of Santa Clara county voted on Wednesday of last week on a proposal to accept from the Central Pacific Railroad Company \$100,000 for its railroad stock.

The right of way through and privilege of grading Fourth street, Portland, has been granted to the Oregon Central Railroad, provided that the expense of grading the road is paid by the company.

The supervisors of Santa Cruz have passed an order, to submit to popular vote the question of giving a subsidy of \$100,000, for the construction of a railroad from Watsonville to the county seat.

The San Joaquin Valley Railroad is advancing southward, at the rate of half a mile daily, and will soon reach Bear Creek.

Engineers are engaged in surveying a railroad route, from Summit, Solano county, via Oak Grove, to a point on the projected Sonoma railroad.

The California and Oregon Railroad will reach Red Bluff, this week.

A railroad enterprise is talked of in Eastern Nevada, to open up the resources of the country.

The Walla Walla and Columbia River Railroad Company propose to build a narrow-gauge railroad, from Walla Walla to Wellhula, provided \$75,000 is raised.

Leevenworth has appropriated \$250,000 toward the construction of a narrow gauge railroad, from that city to Denver. The people of Colorado propose to raise \$500,000 for the same object.

The Texas Pacific Company is combining the various railroad interests, for a through line from the Mississippi to San Diego.

The first division of the Denver and Rio Grande Railroad is completed and in full operation. The width of the track is 3 feet, and that of the cars 6½ feet. It is intended to extend the road to Santa Fé.

T. G. Eastwick and party, who have been surveying a passage through the Bitter Root range, for the Northern Pacific Railroad, have returned to Lewiston, being prevented from further explorations by snow. The Northern Pacific expect to have nearly one-third the distance across the continent completed by the close of next year.

Trains on the California and Oregon Railroad will be running through, from Eugene City to Oakland, Oregon, by the middle of December.

A project to connect Santa Cruz with the Southern Pacific Railroad is being agitated.

The Utah Northern Railroad, narrow gauge, is being pushed ahead. This road will take the Idaho and Montana trade from Corinne. Work on the Utah Southern Railroad is being vigorously prosecuted. It is in operation for 17 miles, and will be finished to Lehigh, 30 miles, before the close of the year. This road is the exclusive work of the Mormons.

A surveying party are locating the line of the O. & C. Railroad, on the east side of Wapato Lake, Oregon, and will cross the Yamhill river, between Lafayette and Dayton.

It is reported that the terminus of the Northern Pacific Railroad on Puget Sound, will be located within sixty days.

Ten per cent. has been paid in on \$130,000 of the \$150,000 subscribed for the recently organized San Diego and San Bernardino narrow-gauge railroad. Application has been made to the Board of Supervisors asking aid to the amount of \$100,000 in twenty-year bonds. The projected road will be 124 miles in length and will cost a million and a half fully equipped.

A large and elegant railroad depot is to be built at Vallejo. It will be semi-gothic in style, and will contain, besides the sitting room and baggage room, a ticket and telegraph office. The platform will be 30 feet wide.

During the past week a surveying party have been surveying a route proposed for a railroad from Sancelito, to connect with the California Pacific railroad, on the Summit in Jamison Cañon, about 48 miles from Sacramento.

The *Celusa Sun* discusses the feasibility of a narrow-gauge railroad from Colusa to Marysville. It says it is claimed that it can be built and stocked for about \$8,000 per mile, and the entire cost of the proposed road would only be \$200,000.

## Inyo County—The Silver Sprout.

The *Inyo Independent*, in a late issue, gives some interesting particulars about the series of mines in that county, known collectively as the Silver Sprout, and from which we condense the following:

The series comprise some thirty different ledges, together forming a complete labyrinth or network of quartz veins, such as is seldom met with—perhaps nowhere else in the State. Some 20 shafts and tunnels have been opened on this property, within an area of 500 by 2,000 feet, and from the developments already made, the evidence is very conclusive that the property must be a very valuable and extensive one. Within the area above mentioned there are not less than 30 different ledges, together forming a most perfect labyrinth or net work of quartz veins. The two principal ones, called the "Lomb" and "Silver Sprout" are about 300 feet apart, parallel to each other, and to the crest of the mountain. They cut through and across three ridges, which extend down the side of the mountain. This gives the best possible position for prospecting at varying heights. Both of these ledges have been opened at various places, from 50 to 300 feet apart, covering in all some 1,500 feet. Several of the minor ledges have been prospected, each presenting the same general characteristics of the main, or Silver Sprout.

In order to determine the future course in regard to the management of the mine, Mr. Wingard has selected for shipment and reduction in San Francisco, about 3,000 pounds of fair, average ore, a portion from the several different openings of the mine. The location considered in relation to the facilities for getting out and reducing the ore may be considered as good as could be desired. The altitude is very great, probably not less than 10,000 feet above the sea. It is about three miles distant from, but fully 3,000 feet higher, than the famous Kearsarge mine, and on the same mountain. It is, however, an entirely distinct series of mines, though there is a great similarity in the nature and appearance of the ores of the two mines. Both carry a small percentage of base metals, but scarcely enough to be considered "rebellions." The mine is situated upon the southern face of the mountain in such a manner that the snows or storms cannot materially effect the transportation of the ore by tramway, which is the only cheap method practicable.

The mill now owned by the company is down the cañon nearly 5 miles. The proper place for the mill and to which it will soon be removed is immediately below the mine and about one mile distant. Here there is an abundance of timber and water, a wide valley free from all dangers of snow-slides, and where, by means of a tramway, ore can at all seasons of the year be shipped directly from the mine to the batteries. The whole cost of mining, transportation, and reduction of the ore from the mine, with the proper and practicable facilities, need not exceed \$10 per ton. The Silver Sprout is unquestionably a very valuable mine, and with proper management cannot fail to remunerate its owners and at the same time prove of great benefit to this section generally.



# MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**EXCHEQUER MILL.**—Alpine Miner, Nov. 11th: This mill was crippled in its operations on Tuesday by the carelessness of a workman in not oiling the cams and attending to the revolutions of the stamps properly. One entire battery was nearly ruined.

**FLATTERING** indications are found at several new points in the Silver Glance, which adjoins the Tarshish on the same lode. Ore of fair quality is found in the Monitor No. 3, on the same lode.

The Mills of the Monitor and Tarshish Cos. are progressing at a favorable rate and the Hoisting works of the Globe will soon be complete.

### AMADOR COUNTY.

**LITTLE AMADOR.**—Amador Ledger, Nov. 18th: The new mill intended for crushing the quartz taken from the Little Amador mine, at Amador City, is fast reaching completion, and will be ready for operation by the time the winter rains fairly set in.

**KENNEDY MINE.**—After a "run" of 16 days, the batteries in the mill were cleaned up on Monday last, and the yield realized \$6,000.

**KEYSTONE MILL.**—The new quartz mill now being erected by the Keystone M. Co., at Amador City, is nearly completed and will soon be pounding away.

### CALAVERAS COUNTY.

**"STRUCK IT."**—Calaveras Chronicle, Nov. 18th: Asbury & Co., props. of the Good Hope mine at Mosquito Gulch, have struck pay ore. For 7 or 8 months they have been steadily at work running a tunnel to intersect the lead, and after digging 500 ft. through solid rock they have accomplished their purpose. At the point of intersection with the tunnel the ledge shows 18 inches in width and the quartz prospects \$10 per ton. A level is being run in the direction of the old shaft sunk on the lead, with the expectation of finding better rock.

**RICH ROCK.**—Very rich quartz has been struck in the Wolverine mine near Railroad Flat.

**BATES & Co.**, props. of the old Mok Hill tunnel mine, near town, are taking out good pay.

**WEST POINT.**—Six tons of quartz from Hadler & Steger's late strike paid \$52 per ton. They will put up the necessary machinery at once, to work the lead, with an overshot waterwheel as motive power. Harris and Bailey have recommenced work, sinking on the "Woodhouse" mine. Reed & Hillary's last crushing of assorted rock paid \$100 per ton. Morse & Doyle are getting very good rock.

### INYO COUNTY.

**STUCK IT.**—Inyo Independent, Nov. 11th: The San Lucas mine, at Cerro Gordo, presents a magnificent appearance, showing a very rich ledge 8 ft. in width. One-half of this is classed as smelting ore, while the other side is found to be milling rock. The Cervantes mill, at Lone Pine, is to be started up and run on the latter quality of ore.

**STRIKE.**—The strike of an extensive body of lead ore in the Omega tunnel, at Cerro Gordo, is reported. It is in a cross vein, 900 ft. from the mouth of the tunnel. Drifts to the northwest disclose the solid metal 4 ft. in width.

### MONTEREY COUNTY.

**QUICKSILVER MINE.**—Grass Valley Republican, Nov. 15th: A rich quicksilver mine has just been discovered at San Juan South. The vein is 6 ft. wide, exposing one of the finest bodies of ore ever seen, with a foot of vermilion earth covering the ledge in its entire length. Parties are negotiating for the mine for \$200,000.

### NEVADA COUNTY.

**COE MINE.**—Grass Valley Union, Nov. 18th: Fine specimen rock, showing gold and rich in sulphurets, has of late been coming out of the shaft. The ledge is 4 ft. thick and the rock is ribbon rock. The shaft runs through 60 ft. of this fine ribbon rock, and is down 280 ft.

**BEN FRANKLIN MINE.**—A clean up of the old Ben Franklin mine was made yesterday. The rock crushed was 27 loads, and the yield was \$1,230, or within a fraction of \$45 to the load.

**SAPPHO LEDGE.**—The Sappho location is on a ledge in Toothaker's ranch, north of the Allison Ranch ledge and on a line with the Allison. Some work has lately

been done, with good results. Rock has been taken out which gives splendid prospects in a hand mortar.

**DARTMOUTH MINE.**—The Dartmouth Co. has been running a tunnel into Alta Hill, from Grass Valley Slide. A few days ago the tunnel was raised up and the miners struck into a body of gravel, which is said to prospect well.

**NORTH STAR MINING MACHINERY.**—The North Star mine is to have a new boiler and a new engine for running the mill.

**HOPE GRAVEL MINE.**—The clean up last week was a very good one. After a run of 10 days, 182 ozs. of gold was taken from the mill. This is worth about \$3,100. The gravel in the drift is looking well, and the next run will probably be as good as the last one was. Preparations are now being made to run a drift in a southerly direction, towards Adams' ranch, with a view to striking a large body of gravel known to be in that part of the hill.

**DAISY HILL MINE.**—The Daisy Hill mine is a little to the east of south from Ophir Hill. There is a shaft down 150 ft. on the incline and from the bottom of the shaft a drift is run 100 ft. towards the south. The ledge pitches to the west at an angle of about 45 degrees. At the mine there are 2 steam engines, which do the hoisting and pumping. Each have an 8 inch cylinder. Yesterday the proceeds of 42 loads of rock were brought into Grass Valley and the gold was valued at \$6,500.

**MINING LOCATION.**—National Gazette, Nov. 13th: J. W. Rely and others have located, 1,300 ft. of the Western extension of the Knights of Malta quartz ledge on Roberts ravine, Grass Valley township.

**COLUMBIA HILL.**—Nevada Transcript, Nov. 19th: The miners at Columbia Hill are preparing for winter work. The Union G. M. Co. and Nichols & Co. are building a large reservoir near Lake City, and fitting up for extensive work at Kennebeck Hill this season. It is reported that the Leke Co. will complete the flume started by them some time ago, and run it up so as to work the claims formerly worked by Weighels & Co.

**GETTING READY.**—The Blue Tent miners are getting ready for work. Recently Kelham & Co., got 300 kegs of blasting powder from below, to be used in their mine at Blue Tent. They propose to raise gravel in the locality next winter if the weather is favorable.

**MINING SEASON.**—On the Little York Ridge, the Little York G. and Water Co., since they purchased the claims, have opened them systematically, and they are now taking out large returns.

The claims in the vicinity of You Bet and Red Dog purchased last year by the English Co. are being prepared for extensive washing this season.

Jacobs & Sargent are fitting up their diggings at Quaker Hill for a heavy season's work. They will run with 5 monitors and open through both Railroad and Gas cañons.

At Omega there has been great advancement in hydraulic mining, and there will be extensive work done there this season as soon as water can be obtained. Recently the miners in the vicinity of Hunnefauth's old place have found excellent prospects, and at the Cascades and on the Yuba considerable work will be done.

Along the Ridge, at Relief Hill, Bloomfield, and other points, as far down as French Corral, the miners are at work, washing when water can be obtained, and getting ready when there is no water. At Montezuma Hill, the old Keystone ground which paid well for drifting, has come into the hands of a company which is fitting it up for hydraulic working.

At Rough and Ready, the miners are much better prepared for work than last season, and are only waiting for water to commence operations.

In this vicinity, at Onetomah Hill, Cement Hill, Blue Tent and other points, much work has been done in the way of fitting up for more extensive work this season.

**TOWN TALK MINE.**—The regular monthly clean up of the mine on Saturday was \$4,000.

**BLOOMFIELD DAM.**—The North Bloomfield G. M. Co. propose to raise their dam on Big Cañon creek, near Bowman's ranch 100 ft. higher than it now is.

**JOHN BRIGHT MINE.**—Grass Valley Republican, Nov. 16th: The lessees are now running a drift on the ledge on the lower level, taking out rock as they proceed. They are at a depth of 220 feet from the surface. The ledge is about 15 inches wide. The last crushing yielded \$70 per ton.

### SAN DIEGO COUNTY.

**BULLION.**—San Diego News, Nov. 9th: The shipment by Wells, Fargo & Co. on Monday, was \$1,900.

**IMPORTANT PROSPECTING ENTERPRISE.**—Mr. Wilson, of S. F., is about to organize a prospecting expedition, to start from the mines of the Cuyamece ridge, and follow down the mountains along what is believed to be the mineral belt to the Cajon Valley, continuing the tour thence by the mountain ridge into Lower Cal., until the San Rafael region is reached.

**ITEMS.**—At Julien City, Defrees' mill is running on Helvetic rock. Gunn, Reynolds & Co. are running on ore from the Owen's mine. The Stonewall mill is crushing ore from its own mine, running on usual time. The mills are fully employed, having just now all they can crush.

Work is being prosecuted on the following named mines in Julian Dist.: The Owens (now getting out 10 tons per day), Van Wert, California, Hayden, Lone Star, Helvetia and Big Blue.

In Banner Dist. the McMechan mill has commenced crushing on ore from the Redman mine. The mill of the Antelope Co. is also running on ore from that mine.

The following named mines are at this time being worked in this Dist.: The Chaparral, Antelope, Medden, Kentuck, Redmen, Bailey, Hubbard and Golden Chariot. The latter mine has been "bonded" to Wilson & Co., of S. F., for 60 days. The consideration is the sum of \$65,000 in gold coin.

### SAN LUIS OBISPO COUNTY.

**MINING EXCITEMENT IN CAMBRIA.**—Six months ago a man named Heskins was prospecting in the Pine Buttes, 11 miles from Cambria, for a site for a sawmill. Being an old miner, his attention was attracted to certain outcroppings on the side of a mountain, and he commenced exploring. His research was rewarded by promising traces of quicksilver and streaks of fine-looking cinnabar. With a few specimens he returned to Cambria, and made known the fact of his discovery to some of the solid men, who organized a Co. and started Hastings back to his claim with tools and supplies. Satisfied that a lead of cinnabar ran through the mountain, Mr. H. explored for it from time to time. Last week his perseverance was rewarded by a "strike," and he returned to town with quite a large number of rich specimens.

**LA LIBERTAD.**—The owners of this quicksilver mine have shipped to S. F. 1,000 lbs of cinnabar, for the purpose of testing its peculiar properties and value.

### SIERRA COUNTY.

**PORT WINE.**—Mountain Messenger, Nov. 11th: The old Monte Cristo Co. has taken out but little money this season, owing to their elope-sinking. All is right now, and they are again taking out good pay, and are pushing their main tunnel towards the summit.

The Union Co. are taking out good dirt, but owing to a scarcity of water they can't work half the time.

The Queen Co. is doing first rate, having, some time ago, bought a piece of ground of the old Gate Co. that prospects very well.

The old Eagle wash but little dirt at present, for the want of water.

The old Arie, abandoned 3 or 4 years ago, is now owned by J. Lewis and H. Dranger, who are opening it again.

### SISKIYOU COUNTY.

**BLACK BEAR.**—Grass Valley Union, Nov. 18th: The Black Bear mine has a ledge 11 ft. thick, which pays, by mill process, \$80 to the ton.

## Nevada.

### COPE DISTRICT.

**LUCIA.**—Elko Independent, Nov. 18th: Harris & Co., Andrews, Robbins & Holland, are vigorously prosecuting work on different mines, all of which look promising.

Buel & Bateman have run a level along the Tecoma mine for a distance of about 220 ft., at a depth of 100 ft. from the surface; which shows a well defined vein of high grade ore from 4 to 7 ft. in width.

**COPE.**—The Excelsior M. and M. Co. have just completed a Bailey Furnace with a roasting capacity of 20 tons per day.

The El Dorado is looking well. This mine belongs to the Excelsior Co. They have a quantity of ore on their dumps awaiting their turn at the furnace. The ores are not only rich in silver, but show \$50 per ton in gold. The Co. from this time forward, expect to make monthly shipments of bullion to the amount of \$25,000.

The Monitor has some 25 tons of ore on their dump, worth about \$500 per ton.

There are a number of other mines in the dist. all looking well and plenty of ore on their dumps.

**RAILROAD.**—The Lest Chance is the most developed of any on the eastern slope of the mountains. An incline was sunk on the lode 90 ft. The top of the vein was

composed of carbonate of lead, with some galena and a small percentage of copper. At the depth of 60 ft. the copper took the place of the lead ore on the foot well for 8 ft. in width. At this point a drift was run for the hanging wall, which was found in 13 ft. end below this the copper took the form of red oxide and native copper, affording some of the finest specimens of copper ever found. A tunnel was run, cutting the lode at the depth of 90 ft., when there was another change. The lode is found at this point to be 21 ft. wide, and with the exception of 4 ft. is all good smelting ore, composed of galena and carbonate of lead.

The Hussey tunnel, near by, is taking out some very good ore. Two tunnels are now being pushed on the Humboldt, and a contract has been made by the owner, to extend the tunnel into the Shoo Fly, the dump of which shows 30 tons of very fine ore; while preparations are being made to tap the Web Foot and Tripoli deeper than the shaft has yet penetrated. The most extraordinary development yet made, is on the Ella—a mine containing carbonates of copper. The shipments made, yielded from 23 to 28 per cent. of copper, and the ore grows better as depth is obtained. The deepest shaft is only 30 ft. from the surface, and the foot-wall, while going down at an angle of 30°, changes here to a perpendicular descent. At this depth a drift has been run across the lode, found to be 20 ft. wide, and the ore, nearly the whole distance, is secked without assorting. It will yield 30 per cent. of copper. Ores are being taken from several other points of the mine, indicating a very extensive deposit. The owners are now shipping 20 tons per week, but expect to raise it to 100 tons in the course of two weeks. The Jensen, just below the Ella, has produced considerable ore of like character, and as the owners have purchased the Ella, work on the former has been stopped. The Nip and Tuck, east of the Ella, is producing similar ore.

### ELY DISTRICT.

**BULLION.**—Ely Record, Nov. 12th: W. F. & Co. shipped, since Nov. 5th, 85 bars, valued at \$129,046.79.

**STEELEDT.**—This furnace was started up on Monday on ore from the American Flag mine, and, so far as we have learned, has proved a success.

**OUR MINES.**—The Washington & Creole shaft is down about 160 ft. and still sinking, with good indications. The Pioche Co. are still busily engaged putting up their new hoisting works, and Capt. Hell says he expects to commence work in about ten days. The Lillian Hall shaft is down about 60 ft. and still sinking with good indications. Meadow Valley Co.'s mines are looking well throughout and the Co. is shipping the usual quantity of good ore. Raymond & Ely Co.'s mines looking well, and shipping large quantities of ore to the mill.

**BULLION.**—S. L. Tribune, Nov. 16th: W. F. & Co., received yesterday from the Meadow Valley Works at Pioche, 14 bars worth in the aggregate \$16,491.68. It goes this morning to N. Y. They forwarded on the 11th, to N. Y. 22 bars from same place, worth \$23,098.36.

**ON THE WAY.**—The machinery for the new 30-stamp mill of the Raymond & Ely Co. arrived in Salt Lake about 2 weeks ago, and is now on the way to this place.

**HEAVY SHIPMENT.**—Reese River Reveille, Nov. 10th: The Raymond and Ely Co. of Pioche shipped, from Oct. 1st to 31st, bullion of the value of \$306,814.40.

### HUMBOLDT.

**BULLION.**—Unionville Silver State, Nov. 18th: Amount shipped from the Arizona mine, since our last issue, was \$6,376.

**THE NEW MILL.**—The new mill being erected at Rye Patch, by the Butte M. Co. is progressing at a rapid rate, the frame work being already up and a force of hands employed in its completion. Fifteen stamps will be put in at present, with a capacity for 5 more.

**THE DUN GLEN MILL.**—Spregue & Co.'s new mill is running on gold ore, taken from the mines in that Dist. It is a success.

**GOLDODA DIST.**—Capt. Cummins of Dun Glen, has purchased the Cumberland mine for a S. F. Co., and will commence work at once. The Cumberland ledge was one of the first locations made in that locality, and has always been considered one among the best mines in the Dist. The ore is argentiferous galena, worth on an average about \$70 per ton in silver. A portion of the ore contains sufficient lead for smelting.

### REESE RIVER.

**STOLEN.**—Reese River Reveille, Nov. 10th: Between 11 o'clock last night, and daylight this morning 3 bars of bullion each weighing 95 lbs. and worth about



\$1,100 each, were stolen from the smelting room of the Manhattan Co.'s mill in this city. No positive clue has been obtained of the perpetrators.

**SILVER WAVE.**—The Lyford shaft is cased in a substantial manner since our last visit. Fair headway is made sinking. The Chonoweth shaft is down 60 ft., with streaks of ore coming in through the limestone cap. The Supt. estimates that 115 ft. additional depth will cut through to the ore channel. No. 4 shaft is down 90 ft. Breasting out will begin within a month from this date, for shipment to mill.

**GEN. LEE.**—Drift still running east in ore, which is run out through the tunnel. **NOONDAY.**—Working 7 men in a breast of ore 40 ft. long, and ranging from 2½ to 5 ft. wide. The ore averages (by assay) \$100 to the ton.

#### WASHOE.

**FRANKLIN MILL.**—Territorial Enterprise, Nov. 16th: This mill, on Carson river, 2 miles above Dayton, is being remodeled to such an extent that when the improvements upon it are completed it will stand as almost new. A new and powerful Lafelle turbine wheel is being put in, and 10 new stamps, thus increasing the crushing capacity of the mill to 50 tons per day. A new dam has been built and the height of the race increased 3 ft., giving 18 ft. of pressure upon the wheel. The mill will be in running order in 2 weeks.

Bacon and Trench mills, at Silver City, are building a large reservoir for holding water.

**DANEY.**—The main shaft is down 446 ft., and the drift from the 400-ft. station toward the ledge is in 111 ft. The rock works well, and both shaft and drift are progressing satisfactorily.

**SIERRA NEVADA BULLION.**—We yesterday saw a lot of gold bullion from the Sierra Nevada mine, valued at about \$8,000, and worth \$12 per ounce.

**SAVAGE.**—The ore yield for the last week was 475 tons, assaying \$31.15 per ton. The bullion receipts for Oct. footed up to \$81,000.

**COMSTOCK.**—We yesterday saw 25 large silver bricks, the greater part from the Crown Point and Belcher mines, which were worth over \$50,000.

**CROWN POINT.**—Gold Hill News, Nov. 14th: The drift south, at the 1,200-ft. level, shows continual improvement, and average assays of the ore from that level run about \$48 to the ton. Five mills are now engaged in crushing the ore from this mine.

**BRUNSWICK.**—Carson Register, Nov. 17th: The new Brunswick mill, with its 56 stamps and capacity for crushing 200 tons of ore daily, will be ready to start up by the 12th proximo.

#### WHITE PINE.

**SOUTH AURORA.**—White Pine News, Nov. 11th: Last week our report stated that the lower tunnel, running for the purpose of cutting the mineral belt 70 ft. below the old workings, had improved in appearance. The same spur body continues in the face of the tunnel. The Mitchell shaft, inside of the old works, is down 70 ft. A drift will be started from it to run South, connecting with the main tunnel mentioned above. After the connection is made, all the ore and waste will pass through it from the different works of the mine. The Turner shaft is down 71 ft. A drift is running southeast to strike the Trewella shaft.

**GENESSEE.**—The rock in the new shaft continues favorable for fair headway in sinking.

**EDGAR.**—Drifting east from the 100 ft. level.

**GREAT WESTERN.**—The new contract in west drift of upper shaft, is going on. The ore in sight at present is worth only \$6 to \$8 per ton, but rich chloride has been found in this locality.

**EAST SHEBOYGAN.**—The ore body has increased since last report in all the drifts, and in the East Exchange incline there is a stratum in the ore body 2 ft. thick, containing horn silver in abundance. The Oxford shaft, started a few weeks ago north of the old openings, is not yet down to ledge matter. After the Oxford is down, other prospecting will be carried north on the same line toward the point where it is proposed to commence the tunnel.

#### Arizona.

**MINES AND MINING.**—Arizona Miner, Nov. 4th: The excitement in mining circles continues. The Tiger rests, and awaits advent of capital to render its treasure available. The work of delving and drifting is, however, progressing as usual.

The scarcity of water has necessitated the suspension of work on the Del Pasco. Up to last week the mill had been running

192 hours, during which 42 tons of ore were crushed. Upon cleaning up this yielded \$2,200 in gold. Work will be commenced as soon as nature shall furnish sufficient water.

In the new discoveries in the vicinity of Prescott the ledges are small, varying from 12 to 18 inches in thickness, but almost incredibly rich. The average rock, taken from the surface, will yield \$1,500 to the ton; no piece of rock, from either the Cornucopia or the Bismarck lodes; tested, has yielded less than \$1,000 per ton, while selected specimens have yielded \$3,500. The rock presented by these lodes is precisely similar in character—of a grayish red color, with rock-crystal interspersed, and presenting chloride and horn silver at every fracture. The owners intend to commence work in these ledges immediately.

**WALLAPAI.**—The ore from the Lone Star and Empire lodes is constantly improving as the work of sinking progresses. A large quantity of ore from the Little Chief, was being shipped to S. F. and a greater quantity was still on hand, at the Empire and other lodes, awaiting shipment.

#### Colorado.

**BULLION.**—Colorado Miner, Nov. 9th: The total product of our mines for the month of Oct. is \$73,586.40.

The Stewart S. Reducing Co. have shipped since our last issue:

Brick No.	Oz. Silver.	Fine.	Coin Value.
367	117	754	\$1103.66
368	117	754	1103.37
369	119	745	1092.82
370	109	754	1071.41
371	104	754	1070.55
372	519	744	528.06
373	751	708	745.74
Also Lead Bars.	1046	390	527.39
71	939	390	473.44
			\$7,713.46

The mill is running mainly on Terrible second class ore.

Palmer & Nichols have shipped

Bar No.	Oz. Silver.	Fine.	Coin Value.
44	141.83	802	\$1152.07
45	148.85	638	1173.25
			\$2,706.32

The International mill, Argentine, has shipped

Bar No.	Oz. Silver.	Fine.	Coin Value.
20	1102	802	\$1,300.00

Total for the week, \$11,479.78.

**COMET LODGE.**—J. Smith and A. M. Graves have leased the west half of this lode. They have sub-leased 300 ft. of their ground—100 ft. to Repeal & Co. All the ground opened by these parties is furnishing first class milling ore, in considerable quantities. The last mill run of ore taken by Smith and Graves, gave a yield of 209 ozs. per ton. The ore now being mined out in all the workings of the mine, on the ground worked, is of better average quality than any ever before mined out. Mr. Repeal had an assay made of decomposed material taken from his ground that gave a yield of 1,480 ozs. per ton. All the ore we saw, and there were a large number of sacks, had a look of sulphurets of silver.

**CARIBOU.**—Cor. same: Fuller & Co. have lately discovered a lode, they call the Canadian, half a mile south of town, in a place considered barren of silver ore in paying quantities, yet this promises to equal any discovered in this dist. At 12 ft. they are taking out sulphurets of silver and a mixture of copper and zinc blende. The Seven-Thirty is again turning out the same high class of ore that made it so celebrated last spring.

Corning & Co. have let a contract to sink the Wahash 35 ft. This lode shows as well as the Caribou did at the same depth.

#### Idaho.

**THE COUNTRY NORTH.**—Idaho World, Nov. 9th: A basin has been discovered south of Warren's diggings but very little prospecting had been done. Mr. Hooton saw a prospect of 18 cts., which was creviced out of a seam in the bedrock of the main stream running through the Basin. Mr. Hooton brought in some specimens of quartz from a ledge in Deadwood Basin, which proved to be rich in both gold and silver, the rock being of a live character, hard and solid and not of a decomposed nature. We are satisfied that rich and valuable quartz discoveries will be made. Numerous ledges have been discovered, but very little work has been done on them; prospectors generally looking out for placer ground and paying little attention to quartz interests.

#### Montana.

**THE MINES.**—Deer Lodge Independent, Nov. 11th: At Highland all the arastras have suspended on account of the cold weather. Work upon the ledges is pushed forward with activity. The placer miners are mostly at work, but will be compelled

to shut down in a short time. At Moose Creek all placer mining has ceased, but Parks & Dicky are still running their arastras successfully. They will employ a force of men on their mines all winter, and expect to take out enough paying ore to keep 3 arastras running the ensuing summer. But few Co.'s are now running their mines at Pikes Peak and these will suspend in a few days. This is also true of the mines at Pioneer. In all the southern portion of the county, with the exception of German Gulch, mining has been stopped for the season.

**BEARTOWN.**—There is as much mining going on now as any time last summer. J. Hohhine lately sold a portion of his large claim at remunerative figures.

**BIO MINE.**—Helena Gazette, Nov. 6th: Some gentlemen have recently prospected, developed and pre-empted on the Big Boulder in Jefferson Co., one of the most extensive silver lodes in the world. The vein is sixty ft. wide, and 2 extensions have been made. The ore prospects well from one wall rock to the other.

**SULTANA WORKS.**—These works, consisting of 3 furnaces, are in American Fork Cañon, at the junction of Miller and the main cañon. They were built to work the ores of the Miller mine. The capacity, however, is sufficient to smelt all the ores that the mines in their immediate vicinity are expected to produce for the time being.

There are at present 15 hands at work on the Miller, raising 5 or 6 tons of ore per day. The dumps have now upon them ready for transportation to furnaces, upwards of 1,500 tons of ore, while 100,000 bushels of charcoal are under roof.

The hullion produced is worth 61.96 oz. of silver, 1.21 oz. gold to the ton, and 60 per cent. of lead.

#### Utah.

**LITTLE COTTONWOOD.**—Salt Lake Tribune Nov. 16th: A new body of ore was struck 2 weeks ago in the Emma, 600 ft. from the surface, apparently of great extent.

The Flagstaff is shipping more ore than any mine on the hill.

The Last Chance, near the top of the hill, is doing a large business in the shipment of ore.

The Davenport is looking well and has furnished considerable ore to the Hawkeye works in Big Cottonwood.

The great Wellington has several thousand sacks of ore in sight, and are erecting houses and sheds to enable them to continue work through the winter. The Creek lode, near this mine, shows very rich. The ore assays very high, and the prospects are, that it is plentiful.

The Charlotte lode, near the American Fork divide, is a "true fissure vein," having fixed wall-rock. The ore is very rich in silver, several of the assays running \$650 to the ton.

**AMERICAN FORK.**—Cor. same: The Sultana is running nicely. The Pittsburgh mine can produce at least 5,000 tons of free carbonate ore at a small cost. The lead is well defined. The Co. propose putting up a smelter at once. The ground at Deer Creek is surveyed, and the foundation commenced for a quartz mill; a smelter is to be put up at the mouth of this cañon, and large refining works at Lehi. The Waterloo mine, opposite the Miller, will be worked this winter. The Emeline, Conqueror, Champion and Chelsea, are old locations, and considered valuable. The Silver Glance is one of the best.

#### Mining Stock Market.

THURSDAY EVE., Nov. 23, 1871.

Stocks have fluctuated considerably during the period under review. They were in limited request on Friday, and the usual amount of business was done on Saturday, while on Monday they were moderately active. Since then they have been weak.

The Raymond & Ely Co. disbursed last Friday \$130,000 among the stockholders. The sales at the Stock Board for the week ending Wednesday, November 15th, amounted to \$2,221,000. Nearly 1,000 tons of ore were taken from the Chollar-Potosi mine last week, assaying \$42.45 per ton. The product from the Hale & Norcross last week was 1,250 tons of ore. On November account \$82,700 have been received from the Meadow Valley mine.

At the annual meeting of the Kentucky Mining Company, held yesterday afternoon, the following Trustees were elected: D. L. McDonald, J. A. Pritchard, I. G. Messec, J. N. Vimont and J. C. Maynard. Frank Swift was elected Secretary in place of J. L. King, resigned. At the beginning of the last fiscal year, the amount of cash on hand was \$6,145. The amount received from hullion product, premium and in-

cidental, was \$129,693. Two assessments of \$20,000 each, were also collected, making the total receipts, including cash on hand, \$165,828. The amount paid for labor and supplies at mine and mills, freight, exchange, etc., was \$140,674. The expenses at the office at San Francisco were \$4,892, and of the Gold Hill office, including salary of Superintendent, etc., \$4,892; miscellaneous, 855—making the total expenditures \$150,358, and leaving \$15,470 cash on hand.

#### Comparative Prices, Extremes, Advance and Decline.

	Nov. 16, Highest.	Nov. 23, Lowest.	Adv.	Dec.
Alpha.....	270	270	—	—
Amador.....	322½	322½	—	—
Buckeye.....	32	32	—	—
Chollar-Potosi.....	32	32	—	—
Caledonia.....	13½	14	—	—
Cons. V. & C.....	84	84	—	—
Crown Point.....	317½	360	315	360
Danely.....	—	—	—	—
Eureka Cons.....	23	25	21½	21½
Eureka.....	26	26	22½	23
Golden Chariot.....	54	54	—	—
Gould & Curry.....	59½	59½	—	—
Hale & Norcross.....	115	115	—	—
Ida Elmore.....	—	—	—	—
Imperial.....	—	—	—	—
Kentucky.....	140	151	135	—
Mammoth.....	—	70	70	—
Meadow Valley.....	37	37	33	—
Occidental.....	—	—	—	—
Opbier.....	24½	20½	24	—
Orig. Hid. Treas.....	6	6	6¼	6¼
Overman.....	25½	25½	19½	20
Potosi.....	8½	8½	8	—
Raymond & Ely.....	92	65	63½	—
Savage.....	45½	48½	45	47½
Sierra Nevada.....	20	20	20	—
Silver Wave.....	—	—	—	—
Wash. & Creole.....	5½	5½	4	4½
Yellow Jacket.....	61	61	57	57½
St. Patrick.....	20	20	20	—
Seg. Belcher.....	26½	20	22	—

#### Latest Prices—Bid and Asked.

	BID. ASKED.		BID. ASKED.
Alpha Cons.....	8 10	Ida Elmore.....	—
Amador.....	250 250	Imperial.....	—
Belcher.....	330 335	Kentucky.....	23 24
Chollar-Potosi.....	31½	Meadow Valley.....	33 34
Crown Point.....	330 340	Opbier.....	22½ 23
Danely.....	—	Orig. Hid. Treas.....	6½ 6¼
Eureka Cons.....	21 22	Overman.....	20 22
Eureka.....	22 23	Savage.....	45 47½
Golden Chariot.....	54 55	Raymond & Ely.....	68 69
Gould & Curry.....	94 100	Sierra Nevada.....	—
Hale & Norcross.....	115 117	Yellow Jacket.....	57½ 59

#### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME.	LOCATION.	AMOUNT AND DATE OF ASSESSMENT.	DAY OF SALE.
Altona, G. Valley, Cal.	Oct. 31, 25c.	Dec. 4—Dec. 26*	
Bellevue, Placer Co., Cal.	Nov. 1, \$1.	Dec. 6—Jan. 2	
Buckeye G. & M. Co., Nev.	Nov. 10, \$1.	Dec. 14—Jan. 2	
Con. Vir., Nev.	Nov. 9, \$1.50	Dec. 13—Jan. 6	
Eagle Quicksilver, Cal.	Oct. 30, \$40.	Jan. 6—Jan. 8*	
Emerald Hill M. Co., S. L. Co., U.	Nov. 3, 10c.	Dec. 11—Jan. 2	
Gould & Curry, Nev.	Oct. 25, \$15.	Nov. 19—Dec. 2	
Golden Chariot, Idaho	Nov. 15, \$3.	Dec. 23—Jan. 15	
Highland S. M. Co., Nev.	Oct. 9, 10c.	Nov. 13—Dec. 4*	
Ida Elmore, I. T., Oct.	19, \$2.	Nov. 24—Dec. 15	
Kearnsage, Iyo Co., Cal.	Oct. 21, \$5.	Nov. 27—Dec. 26*	
Kinsaid Flat M. Co., Cal.	Oct. 11, \$2.50	Nov. 13—Dec. 4*	
Lillian Hall M. Co., Ely Dist., Nev.	Nov. 18, \$60c.	Dec. 27—Jan. 23	
Mahogany M. Co., Idaho	Nov. 18, \$2.	Nov. 19—Jan. 15	
Nevada Land & M. Co., Nev.	Oct. 12, 4c.	Nov. 11—Dec. 4*	
Orig. Hid. Treas., W. P.	July 6, \$2.	Oct. 31—Nov. 2	
Overman, Nev.	Nov. 20, \$4.	Dec. 25—Jan. 2	
Piermont, W. P.	Sept. 4, \$1.	Nov. 9—Dec. 8*	
Peter Walter, Placer Co., Cal.	Nov. 14, 75c.	Dec. 20—Jan. 9	
Phoenix, Lander Co., Nev.	Nov. 21, 50c.	Dec. 27—Jan. 16	
San Jose G. M. Co., Cal.	Sept. 18, \$3.	Oct. 29—Nov. 27*	
San Jose Co., Nev.	Oct. 20, \$5.	Nov. 23—Dec. 15	
Seaton M. Co., Cal.	Oct. 27, \$20.	Dec. 2—Dec. 30*	
South Eureka Co., Nev.	Oct. 24, 25c.	Nov. 30—Dec. 23	
Starlight G. and S. M. Co., Nev.	1, 25c.	Dec. 11—Jan. 2*	
St. Louis M. Co., Placer Co., Nev.	Dec. 3, 50c.	Oct. 25—N. 13	
South Chariot M. Co., Owyhee Co., Idaho	Nov. 7, \$1.	Dec. 18—Jan. 8	
South Eureka M. Co., Cal.	Oct. 11, 25c.	Nov. 12—Dec. 11	
St. Patrick, Placer Co., Cal.	Oct. 18, \$3.	Nov. 22—Dec. 15	
Union Gravel M. Co., Cal.	Oct. 11, \$2.	Nov. 12—Nov. 30	
Washington & Creole, Nev.	Sept. 21, 50c.	Oct. 30—N. 25	

#### MEETINGS TO BE HELD.

Golden Sun M. Co.	Annual Meeting, Dec. 11*
Mout Tensho M. Co.	Annual Meeting, Nov. 22
Dana Crockett	Annual Meeting, Dec. 4
Mamabe G. M. Co.	Special Meeting, Nov. 28
Northern Hydraulic M. Co.	Annual Meeting, Nov. 29
North American Con. M. Co.	Annual Meeting, Dec. 4*

#### LATEST DIVIDENDS—(Within Three Months).

Black Diamond Coal M. Co.	Payable Sept. 15
Chollar Potosi, \$1.	Payable Sept. 9
Chollar Potosi, \$1.	Payable Oct. 10
Chollar Potosi, \$1.	Payable Nov. 10
Eureka Cons., \$1.	Payable Sept. 20
Eureka Cons., \$1.	Payable Oct. 20
Keystone M. Co., \$2.	Payable Sept. 16
Meadow Valley, \$1.	Payable Sept. 15
Meadow Valley, \$1.50.	Payable Nov. 8
Natoma	Payable Oct. 5
Potosi B. M. Co., \$1.	Payable Sept. 15
Raymond & Ely, \$1.50.	Payable Sept. 15
Raymond & Ely, \$5.	Payable Nov. 17
Succor Mill and M. Co., 50c.	Payable Sept. 15
Succor Mill and M. Co., 50c.	Payable Oct. 16
Yule Gravel M. Co., 50c.	Payable Oct. 5
Yule Gravel M. Co., 50c.	Payable Oct. 14
Yule Gravel M. Co., 50c.	Payable Nov. 4

\*Advertised in this journal.

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The Globe says: "Various chemists and manufacturers have endeavored to equal the reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of the Maravilla Cocoa. Admiring their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other cocoa on the market. Entirely delicious, it contains a pure and rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocos above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homeopathic Cocoa and Soluble Chocolate. Sole Importers, Messrs. Miller, Brick Lane, London. Export Chocolate Mills, Bruges, Belgium. 1875-1876

N. Seibert's Eureka Lubricators for steam engines are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First Street, San Francisco. 8723-3m







## USEFUL INFORMATION.

## A New Product of Milk.

Every nation has a national drink—some alcoholic preparation that will intoxicate. The natural beverage is varied according to the circumstances of the case. The Mexican pulque, East Indian arrack, American corn or rye whisky, French brandy, is each produced from the vegetable productions of its particular country. But the nomadic tribes of Tartary which have no agriculture, and whose wealth consists of flock and herds—who are exclusively livestock men, in fact—have for ages "made drunk come" through the agency of a vile preparation of mare's milk called *koumiss*.

And now a movement is on foot for introducing this stuff into use in the United States and England. Cow's milk is used instead of the equine product of Tartary, but the article, which by the by, is made in Germany, is substantially the same as Oriental *koumiss*. We are told that "The result of the treatment is a mixture of alcohol, carbonic acid, lactic acid, and finely divided casein and butter, with the residue of the sugar and salts of the milk, in taste resembling a mixture of champagnes and cream, and supposed, as the Tartars are very athletic, to be conducive to health and a preventive of consumption."

But we can have no very sanguine wishes for this attempt to convert the bland lactical fluid into a vile alcoholic compound. It is bad enough that a large amount of milk is derived from the slops of the distillery, without sending the product back to be converted into alcohol.—*Live Stock Journal*.

**WHY GRANITE DECAYS.**—Dr. Roberts, an eminent French chemist, earnestly recommends the use of salts of copper as the best preservative against the injurious effects of a moist climate upon stone buildings; and endeavors to prove that the wasting away of sandstone and granite is due to various causes, one of the most important of which is the development of a minute lichen. This plant, says Dr. Roberts, is so destructive that the beautiful marble sculptures in the park at Versailles would be completely destroyed by it in the space of fifty years unless precautions were taken to arrest its ravages. He states that the amount of wearing away of rocks of all kinds, granite not excepted, is much greater than the public are generally aware of, especially when subjected to the influence of a moist atmosphere.

**WORK DURING SLEEP.**—These cases in which the brain is hard at work during sleep, instead of being totally oblivious of everything, may be called dreaming, or somnambulism, according to the manner in which the activity displays itself. Many of them are full of interest. Some men have done really hard mental work while asleep. Condorcet finished a train of mental calculations in his sleep, which had puzzled him during the day. In 1756, a collegian noticed the peculiarities of a fellow student, who was rather stupid than otherwise during his waking hours, but who got through some excellent work in geometry and algebra during sleep. Coleridge composed "Kubla Kahn" while asleep.

**A CHEAP GALVANIC BATTERY.**—A cheap galvanic battery has been described by Dr. Golding Bird, which, it is stated, can decompose water, and ignite charcoal. The mode of construction is to break the stems of six tobacco pipes, close the bowls, and close the apertures at the bottom of each bowl with sealing wax, get six small toy tumblers, about half an inch in height; put in each a cylinder of amalgamated zinc, and place in each pipe bowl, a thin slip of platinum foil, half an inch wide, and connect it with the zinc of the next cell with platinum wire; fill the pipe bowls with nitric acid, and the battery is complete. In case the platinum cannot be obtained, copper may be substituted. This battery is in imitation of the famous battery made by Faraday, out of a common tumbler.

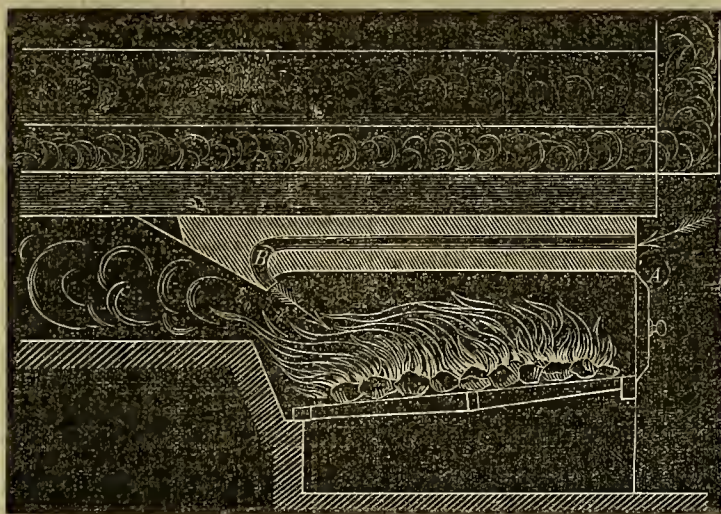
**HOW TO SEE UNDER WATER.**—A writer in the *Scientific American* tells us how to see under water: "The Indians of North America do this by cutting a hole through the ice, and then covering or hanging a blanket in such a manner as to darken or exclude the direct rays of the sun, when they are enabled to see into the water and discover fish at any reasonable depth. Let any one who is anxious to prove this, place himself under a blanket, and he will be astonished when he beholds with what

a brilliancy everything in the fluid world is lighted up. I once had occasion to examine the bottom of a mill pond, for which I constructed a float of inch plank, sufficient to buoy me up; through the center of this float I cut a hole, and placed a blanket over it, when I was enabled to plainly discover objects on the bottom, and several lost tools were discovered and picked up. I am satisfied, that, where water is sufficiently clear, this latter plan could be successfully used for searching for lost bodies and articles."

## Consuming Smoke.

A great waste of fuel is inseparable from the manner in which most boiler furnaces are constructed. It is now over thirty years since attention was first called to this fact and devices applied to remedy the defect. If we are not mistaken, John Y. Williams, of Manchester, England, was the first person who gave a practical demonstration of the fact, that nearly all the smoke which consists of free carbon and escaping, ignitable gases, that passes off from furnaces, whether burning wood or coal, can be consumed—thus utilizing an enormous waste and converting a nuisance into a positive benefit.

Mr. Williams introduced air to the escaping gas or smoke by numerous small apertures in the fire bridge. The defect of this arrangement, however, was that



the air was not brought in contact with the escaping gases at the point when they are richest in unconsumed carbon, etc. Perhaps among the many improvements, none have been made more simple or more effective than the one shown in the plan roughly sketched below. Referring to the figure, A is an arch of fire tile between the fire and the boiler; B, a series of pipes forming air inlets, introducing numerous jets of heated air which strike the fire at its hottest part and where richest in free carbon.

In Manchester and other manufacturing towns of England—where the combustion of smoke is made compulsory by law—the smoke nuisance has been practically abolished, so far as the manufacturing establishments are concerned; greatly to the economy of the manufacturers themselves as well as to the general health and appearance of the city.

**FISH AS FOOD.**—A well known writer, on chemistry as applied to food, has made the statement, based on actual scientific investigation, that there is as much substance in a pound of salmon as there is in a pound of mutton. This fact alone shows the advantage to be derived from proper care and protection extended to our waters in stocking them with fish, and by proper laws, giving such care to the promotion of our pastures as to add to our resources, and thus reduce the present enormous high cost of beef, mutton, pork and veal, articles which every housekeeper knows are the real cause of the fearful charges of living.

A FRENCH chemist asserts that if tea be ground like coffee before hot water is poured upon it will yield nearly double the amount of its exhilarating qualities.

## GOOD HEALTH.

## Picking the Ears.

Dr. Hall says "picking the ears" is a most mischievous practice; in attempting to do this with hard substances, an unlucky motion has many a time pierced the drum; nothing sharper or harder than the end of the little finger, with the nail pared, ought ever to be introduced into the ear, unless by a physician.

Persons are often seen endeavoring to remove the "wax" of the ear with the head of a pin; this ought never to be done; first, because it not only endangers the rupture of the ear by being pushed too far in, but if not so far, it may grate against the drum, excite inflammation and an ulcer, which will finally eat all the parts away; especially if of a scrofulous constitution; second, hard substances have slipped in, and caused the necessity of painful operations to fish or cut out; third the wax is manufactured by nature to guard the entrance from dust, insects and unmodified cold air, and when it has subserved its purpose it becomes dry, scaly, light, and in this condition is easily pushed outside by new formations of wax within.

Occasionally wax may harden, and may interfere with the hearing; but when this is the case, it is the part of wisdom to consult a physician and let him decide what is the remedy; if one cannot be had, the only safe plan is to let fall into the ear 3 or 4 drops of tepid water, night and morning;

## Fat People.

Not long ago a gentleman of threescore, who had scarcely ever been sick in his life, thought he was too fleshy and began to Bantamize. He succeeded famously, and boasted to his friends that he had got rid of ten pounds in a few weeks. A little later he was attacked with a painful and dangerous malady, from which he has been suffering more than a year.

If a man can sleep soundly, he has a good appetite, with no unpleasant reminders after meals, the bodily habits being regular every day, he had better leave himself alone, whether he is big as a hoghead or as thin and dry as a fence rail.

Several causes of Bright's diseases have been reported by medical men of reputation as a direct result of practicing Bantam's plan for getting lean. The very best and safest way to get rid of fat is to work it off. This may be aided by eating food which contains a large amount of nitrogen and a small amount of carbon.

Nitrogen food is that which gives strength, power to work, as lean meats; carbonaceous foods are those which make fat, such as cheese, potatoes, rice, corn, peas, beans, tapioca, arrowroot, cornstarch, milk, sugar, syrup, and all oily and fat food. Raw fruits and berries largely eaten are great aids to reducing weight.

But, after all, the great reliance should be on exercise and work in the open air. Barclay, the great English pedestrian, who performed greater feats than Weston, lost ten pounds in two or three days' walking, and was never the worse for it.—*Hall's Journal of Health*.

## INTERMARRIAGE OF BLOOD RELATIONS.

Prof. Richard Owen, L.L.D., A.M., of the Indiana State University, stated an important fact which cannot be too widely disseminated, namely: that in the intermarriage of blood relations is a physiological error, and he might almost say, with our knowledge of such matters, a crime. Speaking from a close observation of this subject for many years of all the families of his acquaintance where close intermarriages had been permitted, the children were either deaf mutes or were afflicted by some deficiency. He knew a young man whose father was a physician, and who should have known better than to marry a double-cousin, but the consequence was, as the last portion of the osseous system developed, the young man from the intermarriage of those in whom the same material was deficient, was prevented from having a single tooth at any period. His sister had but two or three small stubs of teeth, and their brother was altogether deficient in his mental faculty. He insisted that it was a great crime for parents to allow their children to grow up with the idea that they might ever intermarry with blood relations. It should be a thing never to be thought of, the intermarriage with those connected by ties of consanguinity.

Mr. Ferguson knew of a case in Ohio, where some thirty families had married and intermarried until they could no longer tell their relationship. Most of the progeny were deaf mutes, and the remainder a little above idiotic.

**LAZINESS AND LONG LIFE.**—The lazy groan most over their "arduous duties," while earnest workers talk little about the exhausting labors of their profession. Of all creatures, the sloth would seem to be the most wearied and worn. "He that is slothful in his work is brother to him that is a great waster"—first of all of health. Said Dr. Humphrey, for twenty-two years the President of Amherst College, and who reached the age of eighty-two: "I have yet to see the man who died from the effects of study." Kant, an indefatigable student in the most profound themes of metaphysics, and leader of a new school in philosophy, lived beyond the limits of three score and ten. As the result of his experience and wide observation, he was wont to say: "Intellectual pursuits tend to prolong life." He placed great reliance on the power of cheerfulness and will in resisting disease. "Be of good cheer," is as wise a prescription for the health of the body as of the soul.

**BREATHING FOUL AIR.**—When breathing air that is dirty, ill-smelling, or otherwise impure, the breath should be drawn in slowly through the nostrils—never through the mouth. In this way the dust and other impurities are mostly lodged in the passages of the nostrils from which it is readily expelled, and kept from the lungs. People ought always to breathe through the nostrils. A person's life is, in almost all cases, thereby greatly lengthened.

**TO STOP THE BLEEDING FROM LEECHES.**—Make a ball of cotton about the size of a pea; put this pellet of cotton or lint upon the wound; press it down firmly; keep up the pressure for a quarter of an hour. Remove the finger cautiously taking care to let the pellet remain.



# Scientific Press.

W. B. EWER..... SENIOR EDITOR.

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San Francisco:

Saturday Morning, Nov. 25, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Nov. 22, 1871.—Legal Tenders buying 90; selling, 90½. Gold in New York to-day, 110½.

## Table of Contents.

Ambler's Blowpipe Furnace—III.; Academy of Sciences.....	321
MECHANICAL PROGRESS.—A New Kind of Wall; Italian Submarine Experiments; Russian Sheet Iron; A Remarkable Saw, etc.....	322
SCIENTIFIC PROGRESS.—The Cause of Volcanoes; Purification of Fats; The "Psychic" Force; Mechanical Effect of Magnetization; An Eighth Rib in Man.....	322
The Water Question; Railroad Items; Inyo County—the Silver Sprout.....	323
MINING SUMMARY.—Stock & Exchange Board; Market Report.....	324-5
Our Natural Woods; Gold Medals Awarded; The American Chief Gang Plow; On the Assay of Gold.....	326
USEFUL INFORMATION.—A New Product of Milk; Consuming Smoke—III.; Why Granite Decays.....	327
GOOD HEALTH.—Picking the Ears; To Stop the Nose-Bleed; Fat People; Intermarriage of Blood Relations.....	327
Notices to Correspondents; Yield of the Precious Metals; Our Home Industries.....	328
The Gravel Hills of Placerville; Foundry Work at Sacramento; Dutton's Improved Harness—III.; Mining Accidents; Recent Mining Discoveries; Tin Discoveries.....	329
DOMESTIC ECONOMY; DOMESTIC RECEIPTS; MECHANICAL HINTS; LIFE THOUGHTS.....	330

## Notices to Correspondents.

ED. PRESS:—Dear Sir, I herewith send you a sample of wool, which I have just pulled from a species of wild animal, inhabiting the high and rocky mountains of this Territory. I send you this sample, that it may be examined by competent judges as to its value, etc. J. C. ROBINSON, Deer Lodge City, Montana, Oct. 20, '71.

The sample of wool sent us is of but little value, from the fact that it contains a quantity of kemp or long hair, which will not work up into the fibre of cloth. The animal from which it was taken, is commonly called the mountain goat, but is a species of antelope (*Aplocerus Montanus*), which inhabits the elevated plateaus and remote fastnesses of the Rocky Mountains. This hair or wool might perhaps be used with the coarser kinds of common wool in Eastern factories, in the manufacture of the roughest class of goods, if it could be obtained in sufficient quantities; but it is worth nothing in the California market.

GYPSUM.—"W. F. A." There is but little demand for gypsum in this city, and the market is at present overstocked with a very excellent article from Lower California. Farmers in this State have not yet learned to appreciate its value for manurial purposes. It is employed to a limited extent, in Washington Territory, for the purpose of killing off the sorrel, which grows very rank in many localities in that Territory, to the great annoyance of the farmers. The time will come when gypsum will be appreciated here as well as at the East. It is much more valuable in a dry than in a wet climate; the reasons for which we will give in some future number of the Press, for the information of our readers generally.

## Yield of the Precious Metals.

The experience of the past few years has led to vast improvements in the methods of extracting and reducing gold and silver ores, and there are ample assurances that those who now invest in mining enterprises may avail themselves of a more thorough knowledge of the business than formerly. The mineral wealth of the nation is almost unbounded and the yield of the precious metals is gradually increasing. We believe no authentic account is kept of the amount of hullion sent East by railroad, but there is little doubt that if it could be definitely ascertained, and the amount added to that received at San Francisco, the product would be found considerably larger than in past years. The yield of the precious metals is also receiving a decided stimulus from the constant accession of European capital. In fact, it is estimated by good authorities that the low rate of interest in New York and Europe is the legitimate result of the increased annual addition to the supply of gold and silver.

The Atlantic States which have yielded gold in workable quantities are Virginia, the Carolinas, Georgia, Tennessee and Alabama. In 1829 the first deposit of gold from Virginia was made in the mint, the sum deposited being \$2,500. From that period up to 1861, from \$50,000 to \$100,000 were taken out annually, and the net yield for the whole time may be set down as considerably over \$1,500,000. From 1864 to 1867, North Carolina furnished all the gold of the United States, amounting, according to the returns at the mint, to \$110,000. The aggregate of all her gold yield up to 1860, according to official data, is about \$9,300,000. Gold mining began in South Carolina in 1829, since which returns have been made to the mint of \$1,354,000. Georgia has yielded a total product of \$6,971,681, Tennessee only about \$81,500, and Alabama \$201,735 since 1838. The products of the Atlantic States may thus be set down at \$19,500,000 returned to the mint, though a considerable amount probably passed unnoticed directly into commerce.

The total product of gold and silver in the United States for the year 1870, as estimated by Mr. R. W. Raymond, United States Commissioner of Mining Statistics, reached \$66,000,000; California contributing \$20,000,000 and Nevada \$16,000,000 to this amount.

The great sources of supply for the past twenty-two years have been on this side of the Rocky Mountains. Since 1848 the Pacific States and Territories have yielded about \$1,400,000,000. In a letter to the *London Times*, J. Ross Browne says the Comstock lode, Nevada, has produced in 10 years \$120,000,000, and has paid \$30,000,000 in dividends. Grass Valley, California, has yielded \$30,000,000, of which \$15,000,000 may be placed to account of profit. Gold Hill alone produced \$7,000,000—two-thirds of it profit; the Eureka mine has netted \$1,500,000; the Allison Ranch, \$1,000,000; Hayward's mine, in Amador, \$6,000,000 gross—probably \$4,000,000 net; the Sierra Buttes has paid in dividends \$1,200,000; and various other mines in California and Nevada are producing dividends of 30 to 40 per cent. a year upon the capital invested.

When the present mining appliances come to be supplemented by more effective methods for bursting the mountain barriers, our annual supply of the precious metals will, without doubt, be many fold greater than the present; since, from our untold wealth of precious metals, the energies of the nation are likely to be turned more and more to its gold and silver-bearing possessions.

THREE Belgian noblemen are making a tour of Oregon.

## OUR HOME INDUSTRIES.

The various branches of industry and home manufactures, merit the attention of the people and the press, to a greater extent than is usually conceded; while every one is proud of the enterprises daily increasing and spreading all over our thriving State, we do not pause to encourage and credit the originator and leader of these several enterprises, half as often as they deserve. We shall look among the various branches of our home manufactures, and report from time to time, whatever seems to be of interest.

### The Standard Soap Company,

whose establishment is at Nos. 204 and 206 Sacramento street, extending through to Nos. 207 and 209 Commercial street, have the most complete soap manufactory in the State. They make from 40 to 50 varieties of fancy and toilet soaps, and about 20 kinds of family and laundry soaps. They use California tallow almost entirely, and consume large quantities of native soda from Nevada. They also make large quantities of Madame Balcar's vegetable washing fluid from California soap-root. This fluid, which is manufactured by a patent process, is used for all the purposes for which ordinary soap is employed, and is especially valuable in cleansing crockery, glass, silver and paint. It is also used extensively on steamers, for cleaning the machinery, scrubbing the decks, etc. The soaps made by this company are of the better qualities, finely scented, and are guaranteed equal to the best Eastern brands. Their machinery for making toilet soaps comprises the most recent improvements, and their perfumes and essential oils are imported direct from France. Their cocoa nut oil soap is made of pure cocoa nut oil, brought from islands in the Central Pacific. They also manufacture a novel kind of harness soap, which at once oils, blackens, and polishes the harness. The soap of all kinds is out upon wire frames and the cakes of the finer qualities are then stamped and polished by the most improved presses. The candle factory, belonging to this company, was destroyed by fire some time since; but will probably be re-built. The demands upon this company for soap supplies are not confined to local trade; they ship large quantities to China, Japan, Mexico, Tahiti, Honolulu, and the entire Pacific slope, and as far east as Utah. The greatest demand is for their best grades of soap and washing powders.

They have readily taken the first premium at several of the Mechanics' Fairs, State Fair, and at the Santa Clara Valley Fair. Too much cannot be said in praise of the Laundry Blue—its purity as a bluing, its economical qualities and labor saved in the use of it.

The castile soaps manufactured by the Standard Company are worthy of special notice.

The amount of washing powder made and sold in San Francisco, by rude estimate, must be in the neighborhood of six or seven hundred thousand pounds. In 1867, the amount manufactured was over three hundred thousand pounds; and the various establishments manufactured the same year over three and a half million pounds of soap.

The soap plant, native of California, called Amole, was considerably used by the Indians and Spanish Californians, before the country was known to Americans. It has a stalk five or six feet high, with branches about 17 inches long, which are covered with buds that open in the night, commencing at the root of the boughs, about five inches at a time. The next night, another set of buds open, and so continue night after night. It is found in the valleys in increasing quantities southward. A variety of the same plant is found in some of the basins of Idaho. The bulbous root of this plant, when rubbed

in water, makes a lather like soap—it is also considered a fine wash for sheep, by the Mexicans, who used to gather it and use it for that purpose.

### Mission Candle Works.

Messrs. Winter, Maurer & Co., have recently established on Sixteenth street, opposite the Mission Woolen Mills, a large and extensive candle and soap manufactory. The candles made by them are the chemical wax and solar sperm, and are a very superior article. They were awarded a gold medal for their exhibition of candles at the late State Fair, by the committee appointed for that purpose. The most of the tallow consumed is obtained from Australia and Chicago; and from fifteen to twenty tons is used weekly in the manufacture of, from one thousand to twelve hundred boxes of candles. Two of the largest hydraulic presses in use in any factory of the kind in the United States, are employed to press the oil out of the tallow, one being of a pressure of five thousand, and the other of ten thousand pounds to the square inch. Over 400,000 boxes of candles are imported into California from the East annually; but eastern manufacturers usually send their surplus to this State, which is often an inferior article. The candles made at this establishment are chiefly intended for use in minis, as they are hard-pressed, and do not run. The oil pressed from the tallow, in eastern candle factories, is used in other industries, which do not exist in California; but, at these works, the oil is made into an extra article of soap. From forty-five to fifty thousand pounds of soap are made per week, which finds a ready sale, as well as all the candles manufactured.

### Garratt & Co.'s Bell Foundry and Brass Works.

This establishment, which was burned down on the 22d of last July, has just been rebuilt, on the corner of Fremont and Natoma streets. Mr. W. T. Garratt, who is a pioneer in the brass foundry business in this State, has been burned out three times; the last time with a loss of near \$100,000. His new establishment is thoroughly fire-proof, as well as earthquake-proof, and he has no fear of future conflagrations. The walls of the three buildings, which comprise the works, are of a brick, and are of the heaviest and most substantial character; and are girded and anchored with iron bars. The front is of iron, the doors are of the same material, and the windows will be fitted with iron shutters. The buildings are divided by fire-proof walls, and are entirely distinct from each other. The interior is being fitted up in the style of eastern manufactories, and the establishment when completed, will be by far the finest one of the kind in the State. Operations have been commenced in some of the departments, and two heavy furnaces are in process of erection. The most improved kinds of machinery are being received from the East, and put up as fast as they arrive. When in full running order, forty lathes will be in operation, in the machine shop. The number of workmen employed in the different departments, including the foundry and pattern shops, is about sixty. The establishment is intended to manufacture bells, brass work and all kinds of light machinery. Taken all together, it is first-class throughout, and is a credit to the State.

### California File Manufacturing Company.

This company have recently removed from Brannan street to the Potrero. The works are under the superintendence of Mr. T. G. Durning, the pioneer in the business of file making in California, and who claims to be the only practical file maker on the coast. The material used in the manufacture of the files is steel, imported from England for that purpose; tool cast-steel being too brittle for this use. This imported steel takes a better temper, and is harder and tougher than ordinary steel. It comes in bars of the proper sizes for the different classes of files. These bars are cut into required lengths, which are then forged into shape. By the use of a trip-hammer, one man will turn out about fifty dozen of 14-inch files per day. They are next placed in an air-tight furnace, between alternate layers of charcoal, and heated slowly to a cherry red, and then gradually cooled, and thus annealed; after which they are straightened and ground. They are then cut, and tempered in a crucible of melted lead, and cooled off in a large tank of cold water. After this process, they are cleaned and oiled, and are ready for the market. Old files are also re-cut and warranted.

This establishment also makes reaper and mower sections, with bars and knives complete. They claim to furnish all their work at from 40 to 50 per cent. less than the imported articles.



### The Gravel Hills of Placerville.

Whenever the pioneers of this State hear the "flush times" of California spoken of, they are unconsciously carried back by the wings of memory, to the "days of old, the days of gold, the days of '49," and they remember the flourishing town of Placerville as it was then, a bustling, lively, merry place, crowded with rough red-shirted miners, all eager in their search for gold, with still room for the more generous feelings which characterize the Californian the world over. Most all who were here in those early days visited Placerville and its famous mines, and even among those who did not, the local names of the vicinity are familiar as household words. The county in which Placerville is situated does not occupy as enviable a position as it then did, although it was here that the discoveries were made which led to the opening of the gold fields of the Sierra, causing a great influx of adventurous spirits to our shores, who soon poured the hidden millions into the treasures of the world.

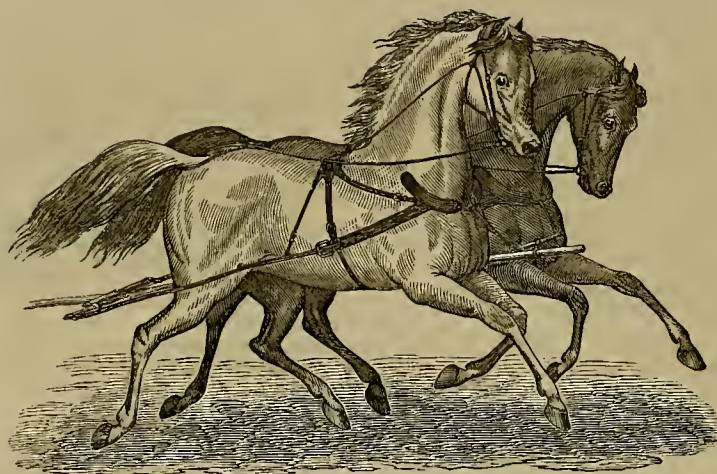
The superficial deposits of auriferous gravel were soon washed away and their contents made available, and it was not for some time that it was discovered that extensive and valuable deposits were to be found at levels above the course of the present streams. Then the hydraulic process was introduced, a system peculiar to California, and the bodies of auriferous cement and detritus were attacked by its agency, and are still successfully worked either by that process or under stamps. These deposits are situated in various parts of the hills in the vicinity of Placerville, and furnish an interesting field for the geologist, and a profitable one for the miner and prospector. The attention of our English capitalists has been turned to these extensive mines, and it was only last week that we noticed in one of our English exchanges the incorporation of a company for the purpose of purchasing and working one of these claims, whose capital stock was \$2,000,000. An interesting article appeared recently in the columns of the *Mountain Democrat*, under the above head, which was written by W. A. Goodyear, of the State Geological Survey, and we now propose condensing from it, and selecting some of the points which may be of general interest.

The structure of the banks which enter into the formation of this extensive gravel range is varied and complex, and the questions as to their origin, exact mode of formation, and distribution of the gold which they contain, are intricate, and difficult to solve. A careful and detailed investigation of these deposits has developed some points of interest, among which the first is—as to the quantity of gravel exposed. No attempt has yet been made to form any definite estimate of the number of cubic yards, and from the nature of the case, the hills being irregular in form and outline, and the distribution of the gravel being also irregular, it is impossible to make any without full topographical surveys of the ground. Even the results would be uncertain, on account of the varying ratio which exists in different hills, and even in different parts of the same hill, between the gravel itself and the volcanic matter which often overlies it in heavy masses. It is perfectly safe to say, however, that this quantity is great; amounting, in the aggregate, to many millions of cubic yards.

One peculiar feature in the character of the gravel formations in this vicinity, is the presence of such immense quantities of a true volcanic gravel, well known to the miners here under the local name of "mountain gravel." Ninety-nine per cent. of all the pebbles and boulders which it contains, and probably more than 90 per cent. of its whole mass, consists of matter which is volcanic in its origin. Yet the material is a perfect gravel, and its pebbles are as smoothly and perfectly rounded by water, as the pebbles of any bank of auriferous metamorphic gravel in the State.

Another point of no less interest to the geologist than to the miner, is the fact that it contains fine gold, distributed appar-

ently through its whole mass even where it is 75 feet or more in thickness; and this, too, not in appreciable quantity, but in sufficient quantity so that at various localities, where large heads of water have been used, it has paid "wages and water money" for piping it off, even at the present high prices for water. This fact, taken in connection with the occasional pebbles of quartz, and metamorphic rocks which are sparsely distributed through it, proves that the stream which brought it here, though flowing mainly at the time over volcanic matter, nevertheless, at some point of its course, flowed over the naked bed-rock, or else over or through beds of previously deposited auriferous gravel, from which it gathered this fine gold. Beside this, and the metamorphic or true auriferous gravel, there are two other well marked substances which make a large part of the formation of these hills, both of which are volcanic in origin. They are locally known by the miners here under the respective names of "black lava" and "white lava," or white cement. The term lava, however, is not strictly applicable to these substances for though almost exclusively made up of volcanic matter they are not entirely so, and furthermore they have never reached here in the condition of "lava flows"—i. e. of streams of volcanic matter rendered liquid by heat and flowing in this condition over the country; but on the contrary they have both of them been brought and distributed here in the solid



APPLICATION OF DUTTON'S IMPROVED HARNESS.

state in the condition of broken and more or less angular fragments and comminuted particles, chiefly, if not entirely, by the agency of water.

The "white lava" is a consolidated mass of moderately fine grained and nearly white volcanic sand and ash, almost entirely free from pebbles or larger fragments of any kind, although it does occasionally contain very small and more or less water-worn pebbles of quartz and slate rock. Its grit is very sharp and it contains more or less mica. Its localities are numerous throughout the range occurring in some places in very heavy masses as on the south side of Wehner Hill and near the head of Cedar ravine; also at Prospect Flat and especially near the toll-house just above Smith's Flat, and in the high bluff overlooking the road just above the toll-house. At the latter point its vertical thickness is probably more than 200 feet. It varies greatly in hardness at different localities, the quality used as a building material dressing easily and well. Its internal character and texture exhibit plenty of evidence that it was originally deposited here in the condition of loose volcanic sand, which has since become more or less perfectly consolidated into a rock.

[To be continued.]

### Foundry Work at Sacramento.

The Union Foundry of Messrs. Williams, Root & Nielson, has lately completed a fine 40-stamp mill for the Amador M. Co., of Amador City, Amador Co., Cal. The stamps are of 750 lbs. weight. A self-feeding apparatus, called the Hitchcock device, will accompany the batteries. One of Brodie's rock-crushers with 10x18-inch opening and weighing 7,100 lbs. will be employed. Also, three 24-foot revolving settlers. The whole will be run by a small turbine, (of Eastern manufacture,) submitted to a very high pressure of water.

Everything is expected to be in running order, on the ground, about the first of December. Mr. John A. Faullis Supt. of the mine. [Since the commencement of this mill, two prominent members of the company have died—Messrs. Geo. Bonner and W. E. Barron.]

This foundry has also turned out a 20-stamp mill for the Philadelphia M. Co., of Drytown. Weight of stamps, 625 lbs. Run by hurdy-gurdy wheel.

The iron work for Judge E. B. Crocker's magnificent fire-proof art gallery is now being cast here. [We understand the Judge has nobly determined to favor the public with a view of his rare collection of paintings during two days of next week.]

The proprietors inform us that there is a sensible improvement in orders for mining machinery lately. Sawmill construction is a specialty, while general repairing embraces a wide range at this shop.

### Dutton's Improved Harness.

The accompanying cut illustrates the practical application of Dutton's improved harness which we described in full in our issue of last week. The principal objects

attained by this improvement are preventing choking, relieving pressure on the veins and neck, and relieving the horse from any distress in pulling, by placing the draft strain on the sides of the neck, saving the neck from galling or chafing and the mane from wear. The harness has received diplomas at all the fairs where it has been exhibited. Mr. John Ashton of Tomales, Marin county, Cal., will give further information in regard to it to those wishing it, as he is authorized to dispose of rights for its manufacture and sale.

LUBRICATING OIL Co.—Among the number of recent inventions on this coast, we would call the attention of our readers to a late patent, entitled "Gruber's Lubricating Oil," manufactured and put up for the market, at the corner of California and Market streets, in this city. It will be seen by a reference to our advertising columns, that it is claimed to be superior to any other oil in use, for printing presses, wagons, carriages, and all classes of machinery, whether used on the farm or in any of the mechanical arts. We understand that samples have been tested by prominent printing and manufacturing establishments in this city with the most satisfactory results. We are informed by the printers, who made a trial of the sample sent to us, that it performs all that is claimed for it, that it does not gum, while it keeps the press cool and clear, and in first-rate running order. It is well worthy of a fair trial.

R. G. SNEATH of this city has distributed 1,000 ramie plants gratuitously among the farmers from all parts of the State.

### Recent Mining Discoveries.

A rich vein of gold and silver-bearing quartz has been discovered in the hills about 30 miles southeast of Dayton, Nevada. It assays very richly, and shows considerable free gold.

A rich quartz ledge has been discovered in Rock creek, Nevada county.

A large lake which recently ran dry in Surprise Valley, has left upon the bottom a bed of superior salt, clear as crystal, from four inches to a foot in depth, and covering an area of fifteen miles in length by six miles in width. Sheriff Burgess, of Siskiyou county, brought a sample to Yreka, which is pure and clear, and he says that toward the center of the dry lake it is even nicer looking than this. The people are busily employed with teams and wagons gathering up the salt and storing it away, no less than ten teams and wagons being in use when Burgess left, leaving small dark spots on the vast white surface, which appeared like snow on the ground.

The Yale College Exploring Expedition, under Professor Marsh, have made interesting mining discoveries, in the Blue Mountains, of Eastern Oregon, and John Day Valley. They also found many new species of extinct tropical animals; of the tertiary period.

### Mining Accidents.

On November 20th, Bast Cronin, a man employed in the construction of the large reservoir back of the Yellow Jacket works, Gold Hill, was attempting to raise a heavy timber, when it accidentally fell over upon him. His left collar bone and shoulder were badly broken, and a portion of one of his ribs forced in upon his lungs. His injuries are so serious that his attending physician thinks he will die.

On last Sunday night, a workman at Gwin's mine, Mokelumne Hill, by name Alphonso Collet, fell from the ladder, a distance of 100 feet, and received fatal injuries. He also struck two men while falling, severely injuring one of them upon the head and the other upon the back.

### The Tin (?) Discoveries.

Specimens of ore supposed to contain tin, from Utah Territory, have been subjected to careful chemical analysis at the General Land Office at Washington, and assays have been made by competent assayers in this city, and no trace of tin has been discovered. Those who made the first assay of this ore, and pronounced the substance in question tin, must have been either very careless, or else they knew nothing about it. It may be excused in many, however, from the fact that that metal is scarce in this country, and perhaps they may never before have had an opportunity of experimenting and becoming familiar with the ore. Some say it is Columbite, and now the general impression seems to be, according to the telegraph, that it is Cadmium; but, until further proof is given, in view of the previous mistakes, parties should be careful of investing in any Tin or Cadmium stock. A circumstance in our recollection serves to strengthen our incredulity.

A few years since a chemist found a deposit of infusorial earth, and in a subsequent analysis of it he found that hydro-sulphuric acid gave him a yellow precipitate which he knew must be either arsenic or cadmium. He then examined the original substance for arsenic alone and found none, so he assumed the precipitate to be cadmium. In the earth itself, he found silica and nothing else, so he called the substance "Silicate of Cadmium." He afterwards found out, after proclaiming his discovery, that the acid he used to acidulate with, contained arsenic, it being impure, which caused his mistake. We hope our friends who are testing this ore will be particularly careful in their work, in consideration of the interest in the result. We would like to see some of this remarkable ore.



## DOMESTIC ECONOMY.

### To Preserve Hams and Bacon.

After the ham or bacon is well cured and smoked, it will keep any reasonable length of time, provided it can be kept altogether free from the hane of this class of provision, the skipper fly. This little insect will puncture anything that is not as hard or impenetrable as leather, and if its ovipositor is long enough, will lay a perfect nest of eggs in the meat enclosed in the covering. When this fact is once ascertained and acknowledged, we can readily contend with its ravages.

To do this with certainty, take thick brown paper and envelope the meat entirely, covering every part so completely that no one portion is exposed; tie it on firmly with twine; then slip the ham or piece of bacon into a factory cotton bag, and hang it up in a cool, dry place. The fly will be "round" very shortly, and would deposit its eggs in the ham, although enveloped in cotton; but the substratum of strong brown paper prevents it from doing so, the ovipositor is not long enough to reach through cotton and paper, especially when the paper is inside the cotton. The insect, however, would soon remedy this difficulty by finding out an interstice in the paper, through which it could crawl, and in which it could do any amount of mischief; but the cotton bag prevents it, as it cannot possibly crawl through any of its interstices, consequently the meat enveloped in the paper inside is quite safe. Many recommend whitewashing the bag, or sewing hams up in cotton cloth, and whitewashing each completely. This is effectual enough if there are no cracks in the plaster or the slightest opening in the bag, through which the ovipositor can be passed and the bacon reached. Generally, however, there are plenty of such cracks or openings, and the insect will readily hunt for and find them. There being no defence inside of this bag as the paper above recommended, therefore there exists no difficulty in reaching the meat, and the first thing we know is that our hams are spoiled, and also the cotton in which the ham was sewn up, for they cannot, after being whitewashed, be again used.

**NATURAL PERFUME.**—A small, wide-mouthed glass jar, such as used by museums for specimens of natural history, should be filled with ether, and closed with a glass stopper dipped in glycerine to thoroughly exclude the air. Fill this jar during the season with the fresh blossoms of any fragrant plant, cut, after the dew is dry, and stripped of leaf and stem as well as calyx. The petals alone of roses, violets, tuberose or pinks should be used; heliotropes should be cut close to the panicle of bloom. Of course a jar is allotted to each kind of blossom. The ether has the property of taking up the fragrant particles from flowers, and when evaporated, leaves the essential oil of the plant behind, a very few drops of which in deodorized alcohol gives a delicious extract. Quantities of flowers are required, and the petals in the jar should be changed for fresh ones every day. Only skill and patience will succeed in the perfumer's art; but one success is worth many failures.

**GRAPE JELLY.**—Take ripe, juicy grapes, pick them from the stems; put them into a large earthen pan, and mash them with the back of a wooden ladle, or with a potato masher. Put them into a kettle (without water), cover them closely, and let them boil for a quarter of an hour, stirring them up occasionally from the bottom. Then squeeze them through a jelly-bag, and to each pint of juice allow a pound of loaf sugar. Dissolve the sugar in grape juice; then put it over a quick fire, in a preserving kettle, and boil and skim it twenty minutes. When it is a clear, thick jelly, take it off, put it warm into tumblers, and cover them with double tissue paper cut to fit the inside. In the same manner you may make an excellent jelly for common use, of ripe fox grapes and the best brown sugar; mixing with the sugar, before it goes to the fire, a little beaten white of an egg; allowing two whites to two pounds of sugar. —Miss Leslie's Cook Book.

**HOW TO BURN KEROSENE WITHOUT DANGER.**—Cram the wick into the lamp, fill up the interstices with sponge, and saturate the whole thoroughly with kerosene; as long as any oil remains in the wick the lamp keeps burning, and no danger need be apprehended from upsetting and even breaking the lamp. A lamp so used is perfectly safe.

**TO PREPARE SKELETON LEAVES.**—A solution of caustic soda is made by dissolving three ounces of washing soda in two pints of boiling water, and adding one and one-half ounce of quicklime, previously slaked; boil for ten minutes, decant the clear solution and bring it to the boil again. During ebullition add the leaves; boil briskly for some time—say an hour—occasionally adding hot water, to supply the place of that lost by evaporation. Take out a leaf, and put it into a vessel of water, and while there rub it with the fingers. If the epidermis and parenchyma separate easily, the rest of the leaves may be removed from the lye and treated in the same way; but if not, then the boiling must be continued for a time longer. To bleach the skeletons, mix about a drachm of hypochlorite of lime (bleaching powder), with a pint of water, adding sufficient acetic acid to liberate the chlorine. Steep the leaves in this till they are whitened (about ten minutes), taking care not to let them stay in too long, otherwise they are apt to become brittle. Put them into clean water and float them out on pieces of paper. Lastly, remove them from the paper before they are quite dry, and place them in a hook or botanical press.

**HOW TO JUDGE THE QUALITY OF PETROLEUM.**—Good petroleum should have the following characteristics:

1. The color should be white or light yellow, with blue reflection; clear yellow indicates imperfect purification, or adulteration with inferior oil.

2. The odor should be faint, not disagreeable. The specific gravity at 60 Fah., ought not to be below 0.795, nor above 0.84.

3. When mixed with an equal volume of sulphuric acid of the density of 1.53, the color ought not to become darker, but on the contrary, lighter.

A petroleum that satisfies all these conditions, and possesses the proper flashing point, may be set down as a pure and safe article. To test the color, care should be taken to select a glass bottle of good quality, perfectly white and clear. —Ironmonger.

**BUCKWHEAT CAKES** are an almost universal favorite at the winter breakfast table. Nature seems to crave them more at that season than any other, the reason for which scientific investigation has made very plain—they abound in those elements by which Nature most easily keeps up the animal heat of the body. Buckwheat is moreover very nutritious and will keep away hunger longer than almost any other food we can eat. A distinguished Judge of the Supreme Court once said that when he took buckwheat cakes for breakfast he could sit on the bench the whole day without being uncomfortably hungry; but if the cakes were omitted he felt greatly in need of a lunch by one o'clock.

**HONEY AND CREAM—ANGEL'S FOOD.**—Honey alone is considered quite delicious enough, but with the addition of cream, it is almost beyond description, and so far from being made too rich, it can then be eaten by many with whom honey otherwise disagrees. It is the most delightful dish I know of, if I except one called "Angel's Food," made of oranges peeled, cut in slices, and between each layer sprinkled with desiccated cocoa nut and sugar—to stand an hour or two then eaten with cream. In all cases orange and lemon seeds must be carefully removed, as they destroy everything by their bitter flavor.

**EXTRACTION OF PERFUME FROM FLOWERS.** In the season for extracting perfume from sweet flowers, gather quantities of rose leaves, sweet geraniums, heliotrope blossoms, carnations, sweet peas, and any fragrant flowers. Place them in a small earthen jar and strew salt plentifully between the layers of leaves and flowers. Set the jar in the cellar tightly covered up and let it stand for six or seven weeks. Then uncover it, and strain out through thin muslin all the liquid that is in it, squeezing the flowers thoroughly after the first straining.

**RENDERING BOOTS WATER-PROOF.**—The *Irish Farmers' Gazette* gives the following recipe for this purpose: Boil one quart linseed oil, with half a pound Venice turpentine, with which paint the leather frequently while warm, but not hot, till the leather will absorb no more.

**A NEW FLOUR PEST.**—A Western paper complains of a new pest worm in flour intended for domestic use. A black bug, a quarter of an inch long lays eggs in the flour which hatch in about ten days.

All knowledge is not in books; therefore cultivate a habit of observation.

### Domestic Receipts.

**STEAMED PUDDING.**—Two eggs, two teacupfuls of sour milk, one teaspoonful of soda, a little salt, flour enough to make it quite thick, or it will be heavy. Beat this smooth. Add cherries, raspberries, currants or any dried fruit you may have. Steam two hours, taking care that the water is kept over the pudding or bag all the time, and that it does not stop boiling. Eat with cream and sugar, hard sauce, or any liquid sauce you may prefer.

**QUAIL PIE.**—Prepare puff-paste as for chicken pie, and cover the bottom of the baking-pan with it. Parboil the birds and cut through the back. Place them in the pie breast to back, ski down; sprinkle over them pepper, salt and a dust of flour, and add for ten quarts a cup of melted butter; pour in as much of the broth in which the birds were boiled as it will hold, and cover with a top crust, cut a gash in the top and bake in a brisk oven.

**POTATO PAN PIE.**—Take four or five large sweet potatoes, cut in small pieces and boil till cooked through; pour off the water and put them in baking dish; then put in three heaping tablespoonfuls of sugar, a tablespoonful of butter, a little nutmeg, and last a cup of cold water. Make a crust like pie crust, only thicker and just large enough to cover the dish; cut a slit in the crust and put it on top of the potatoes and bake till a light brown. This dish is not a fancy one for a light dessert, but a good substantial part of a meal, and is pronounced excellent.

**TEA-LEAVES** are a remedy for hurns and scalds. A poultice of tea-leaves applied to small burns and scalds, afford immediate relief. The leaves are softened with hot water, and, while quite warm, applied upon cotton over the entire burned surface. This application discolors and apparently tans the parts, and removes the acute sensibility and tenderness.

**HORSERADISH SAUCE.**—One teacup of grated horseradish, one wineglass of good cider vinegar, into which has been dissolved a dessert-spoonful of loaf sugar, the same of mustard, a teaspoonful of salt; stir this to the horseradish. Serve with hot or cold meats.

**BEEF KIDNEY** should be parboiled; cut in small pieces, seasoned highly with pepper and salt. Serve with tomato sauce.

### Mechanical Hints.

**NON-SMOKING CHIMNEYS.**—To build a chimney so that it will not smoke, the chief point is to make the throat of the chimney not less than four inches broad and twelve inches long; then the chimney should be abruptly enlarged to double the size, and so continued for one foot or more; then it may be gradually tapered off as desired. But the inside of the chimney, throughout its whole length to the top, should be plastered very smooth with good mortar, which will harden with age. The area of a chimney should be at least half a square foot, and no flue less than sixty square inches. The best shape for a chimney is circular or many-sided, as giving less friction (brick is the best material, as it is a non-conductor), and the higher above the roof the better.

**TO LINE OIL PAINTINGS.**—Take a piece of unleached cotton cloth and stretch upon a frame, and size it with a weak size. When dry take ¼ oz. spirits turpentine, 1 drachm of camphor dissolved in 4 oz. of cold drawn linseed oil; add 2 oz. white lead, 2 oz. amber and 4 oz. finely washed and dried whiting. Mix all together; apply to the cloth, rubbing it in well; after the second coat, pumice down smooth. Then give the back of the picture a coat, and pumice that; then coat both and put them together upon a table. Press them thoroughly together, so as to force all the air out from between the surfaces, and bring them into perfect contact. Let them dry a few days.

**FRENCH POLISH.**—An excellent article may be made as follows: Take 1 ounce of shellac, ¼ oz. gum arabic, ¼ oz. gum copal; bruise them well, and sift through a piece of muslin; then put them with a pint of spirits of wine, into a closely corked vessel; place it in a very warm situation, and shake frequently every day till the gume are dissolved. Then strain through muslin, and keep well corked for use.

**VARNISH FOR SILVER.**—Elemi, 30 parts; white amber, 45 parts; sarcocool, 30 parts; spirits of turpentine, 375 parts. The varnish should be employed in a heated state, and the metal to which it is applied should be heated also. It answers equally well for plated goods.

## Life Thoughts.

OUT of debt—out of danger.

REVENGE a wrong, by forgiving it.

BETTER he alone than in had company. BETTER go around than fall into the ditch.

CONSTANT occupation prevents temptation.

A WISE man is never less alone than when he is alone.

To be angry is to avenge the faults of others upon themselves.

PRAYER is not overcoming God's reluctance, it is laying hold of his willingness.

HE that studies books alone will know how things ought to be; and he that studies men will know how things are.

TAKE care of your thoughts, for they lead to words and acts—just as brooks lead to rivers, and rivers to the ocean.

A PERSON who undertakes to raise himself by scandalizing others, might just as well sit down on a wheelbarrow and undertake to wheel himself.

THERE are some men so exquisitely selfish that they go through life not only without ever being loved, but without ever wishing to be.

PRIDE is the friend of the flatterer, the mother of envy, the nurse of fury, the sin of devils; and it hates superiors, scorns inferiors, and owns no equal.

LAZINESS grows on people; it begins in cobwebs, and ends in iron chains. The more business a man has to do, the more he is able to accomplish, for he learns to economize his time.

A CHRISTIAN should never plead spirituality for being a sloven. If he be a shoe cleaner, he should be the best in the parish.

A WORD of kindness is seldom spoken in vain. It is a seed which, even when dropped by chance, springs up a flower.

### Every-day Religion.

We must come back to our point which is, not to urge all of you to give yourselves up to a mission work, but to serve God more and more in connection with your daily calling. I have heard that a woman who has a mission makes a poor wife and a bad mother; this is very possible, and at the same time very lamentable; but the mission I would urge is not of this sort. Dirty rooms, slatternly gowns, and children with unwashed faces, are swift witnesses against the sincerity of those who keep others vineyard and neglect their own. I have no faith in that woman who talks of grace and glory abroad, and uses no soap and water at home. Let the buttons be on the shirts, let the children's socks be mended. Let the roast mutton be done to a turn, let the house be as neat as a new pin, and the home be as happy as home can be. Serve God by doing common actions in a heavenly spirit, and then, if your daily calling only leaves you cracks and crevices of time, fill these up with holy service.

**A GOOD MORAL CHARACTER.**—There is nothing which adds so much to the beauty and power of man as a good moral character. It is his wealth—his influence—his life. It dignifies him in every station, exalts him in every condition, and glorifies him in every period of his life. Such a character is more to be desired than anything else on earth. It makes a man free and independent. No servile tool, no cringing sycophant, no treacherous honor-seeker, ever bore such a character. The pure joys of truth and righteousness never spring in such persons. If young men but knew how much a good character would dignify and exalt them, how glorious it would make their prospects, even in this life, never should we find them yielding to the groveling and base-horn purposes of human nature which destroy body and soul.

**WASHINGTON.**—One of the most striking things ever said of him is, "that he changed mankind's ideas of political greatness." To commanding talent, and to success, the common elements of each greatness, he added disregard of self, a spotlessness of motive, a steady submission to every public and private duty, which threw far into the shade the whole crowd of vulgar great. The consequence is, that his fame is as enduring as his principles, as lasting as truth and virtue themselves.



## Business Cards.

**E. J. FRASER, M. D.,**  
SURGEON,

No. 102 Stookton Street, San Francisco, Cal.

**JOHN ROACH, Optician,**  
Has removed from 322 Montgomery street to  
540 Washington street,  
East of Montgomery.  
Surveying Instruments made, repaired and adjusted  
25-17-3m

**Farmers and Mechanics**  
**BANK OF SAVINGS,**  
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.  
**H. DUTTON, President.**  
**GEO. M. CONDEE Cashier.** 19-16-3m

**W. R. BARTLING.** **HENRY KIMBALL.**  
**BARTLING & KIMBALL,**  
**BOOK BINDERS,**  
Paper Rulers and Blank Book Manufacturers.  
505 Clay street, (southwest cor. Sansome),  
15-12-3m SAN FRANCISCO.

**SAN FRANCISCO**  
**CORDAGE COMPANY.**

M Manila Rope of all sizes. Also, Bals Rope and Whales  
Line constantly on hand. Mining Ropes of any size  
and length manufactured to order.

**TUBBS & CO., Agents,**  
611 and 613 Front Street.

**SAN FRANCISCO MILL.**  
**HOBBS, GILMORE & CO.,**  
Manufacturers of Boxes,  
Market Street, bet. Beale and Main.  
For sale—Mahogany, Spanish Cedar, and other Woods.

**JOSEPH GILLOTT'S**  
**STEEL PENS.**  
Sold by all Dealers throughout the World.

**J. F. PAGES,**  
**SEAL ENGRAVER,**  
**AND LETTER CUTTER,**  
Brass and Steel Stamps and Dies, 008 Sacramento street,  
San Francisco. Orders by express promptly attended to.

**L. SCHUMANN,**  
**PIONEER**  
**Meerscham Pipe Manufacturer,**

No. 341 KEARNY STREET,  
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast.  
MEERSCHAUM MOUNTED WITH SILVER. Meerscham  
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

**The Merchants' Exchange Bank**  
**OF SAN FRANCISCO.**

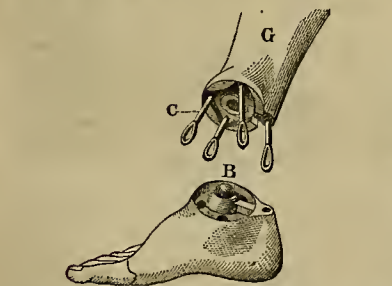
Capital, One Million Dollars.  
**LEVI STEVENS,**.....President.  
**E. N. VAN BRUNT,**.....Cashier.

**BANKING HOUSE,**  
**o. 415 CALIFORNIA STREET.**  
25-20-0y

**INTERNATIONAL HOTEL,**  
San Francisco, Cal.

This Favorite House is located on Jackson street, a  
few doors west from Montgomery; offers the greatest in-  
conveniences for Families. The International Coach will  
be at each Car Depot and Steamboat, plainly marked In-  
ternational Hotel, to convey passengers to the Hotel  
FREE, and to any part of the city at reasonable rates.  
**F. E. WEYGANT & H. C. PARTRIDGE,**  
24-22-3m Proprietors.

**MENZO SPRING,**  
Manufacturer of Dr. Douglas Bly's  
**Patent Artificial Limbs,**  
S. W. corner Second and Jessie Streets, San Francisco



All other kinds changed and repaired. The late im-  
provements on the Dr. Bly Limbs, especially his two  
best Legs (one with, the other without lateral motion  
at the ankle joint), make them far superior to all other  
Artificial Legs in use. (See illustration of Anatomical  
Leg, No. 3, present volume).  
For particulars call or send for circular. Circulars  
sent free. Address: **MENZO SPRING,**  
11-23-sa 101 Jessie street, San Francisco, Cal.

## Eastern Advertisements.

**Peteler Portable Railroad Co.,**

OFFICE, 42 BROADWAY, NEW YORK.

TO CONTRACTORS, MINERS, ETC.



By this invention, one man, with one horse and five  
cars, does the work of ten men, ten horses and ten carts.

Highly Approved by all who Use Them.

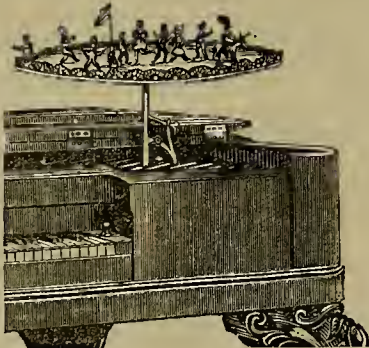
CARS AND TRACKS FOR SALE OR TO LET

Samples at the office. Illustrated Circulars free.

State and County Rights for Sale.

23-22-cow26t

**G. L. WILD & BRO.'S**  
**PATENT DANCING TOY FOR PIANOS,**



A Scientific Musical Toy by which inanimate figures are  
Charmed into Life by Music!

Illustrated in No. 9 of the "Scientific Press," and  
also in No. 9 of the "Pacific Rural Press."  
The PATENT RIGHT for the Pacific States for sale.

Address **G. L. WILD & BRO.,**  
420 Eleventh street, Washington, D. C.  
Inventors and Manufacturers, and Dealers in Pianos  
and Musical Merchandise generally. 9-23-3m

## HOOVER'S

New and Superior Chromos.

The Changed Cross, size 22 by 28.  
The Faithful Crowned, size 22 by 28.  
Virgin Mary and St. John, size 22 by 28.  
The Holy Family, size 22 by 28.  
The Beautiful Snow, size 16 by 22.  
Delhi, Delaware County, N. Y., size 20 by 28.

## ALL REAL GEMS OF ART.

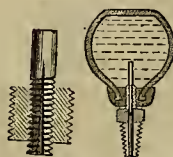
Sold by Leading Dealers throughout the  
United States, and Wholesale by the Pub-  
lishers.

**J. HOOVER,**

804 Market Street,  
PHILADELPHIA.

## SELF-OILERS.

**WATERS' SELF-OILERS.**



PATENTED October 21, 1869;  
July 6, 1867; July 23 and Sept.  
22, 1868, and June 20, 1869.  
Glass reservoir, with white  
metal coupling cast on.  
Substantial brass stem, with  
graduating plug—V slot on  
one side, as shown in magni-  
fied cut—in the top.  
The best and cheapest  
OILER in the market; perfect  
lubrication on loose pulleys and all kinds of hearings.  
Any kind of Oil in any kind of weather. Price, \$4.50  
per dozen. Liberal discount to agents and to the trade.

**WATERS & CO.,**  
no18-3m 164 Elm st, near Fourth, Cincinnati, Ohio.

First Premiums awarded by American Institute, N. Y.

**MICROSCOPES.**

Illustrated Price List sent free.

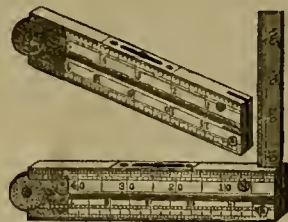
Magic Lanterne and Stereopticon.

Catalogue, priced and illustrated, sent free.  
**McALLISTER, Optician,** 49 Nassau street, New York  
3-23-1y

## STEPHENS &amp; CO.,

MANUFACTURERS OF

**U. S. STANDARD BOXWOOD AND**  
**IVORY RULES.**



ALSO EXCLUSIVE MANUFACTURERS OF

**L. C. Stephens' Patent Combination Rule.**

This cut represents the COMBINATION RULE, which  
comprises a Foot Rule, Spirit Level, Try Square, Bevel,  
Plumb, Slope Level, Etc.

It is made of the very best quality of Turkey Boxwood,  
heavily bound with brass, and is graduated with math-  
ematical accuracy.

The Square is adjustable, and can be tested and made  
perfectly true by the aid of a small screw-driver, but  
this is seldom required.

In its application as a Slope Level it is especially  
adapted for Miners' use, as it shows the pitch to the  
foot, and BEARER or INCLINATION at once. It is six  
inches long when folded, by one and three-eighths wide,  
and three-eighths inches thick, the cut being just one-  
fourth size.

"By the use of one of these, a huddler, mason, car-  
penter, or other workman, can always have in his pocket  
the most valuable of his apparatus used in construction,  
combined in a portable, useful and cheap form."—*Scienti-  
fic American.*

Price by mail, prepaid, \$4. For agents' terms, address  
**STEPHENS & CO.,**  
Riverton, Conn.

10-v23-3m

## RISK OF

**BOILER EXPLOSION EASILY AVOIDED**

BY USING

**EDSON'S**

**Steam Recording Gauges,**

which prompt a constant attention to duty, and are so  
secured by combination locks that they cannot be tam-  
pered with. These are the only gauges that afford a

## CONTINUOUS RECORD

of the fluctuations of steam pressure, and are therefore  
indispensable to all steam users, as well as absolutely  
necessary for the safety of the traveling public. This  
pressure is recorded on a movable chart. They are  
adopted by the U. S. Government, and required to be  
used on all steam vessels.

MADE SOLELY BY

**The Recording Steam Gauge Co. of N. Y.**

91 LIBERTY STREET, NEW YORK.

Manufacturers also of Superior Plain Indicating and  
Excessive Recording Gauges, particularly adapted for  
Locomotives. 10-23-tf

To Advertisers.—All persons who contemplate  
making contracts with newspapers for the insertion of  
Advertisements should send to

**GEO. P. ROWELL & Co.**

for a Circular, or inclose 25 cents for their One Hun-  
dred Page Pamphlet, containing Lists of 3,000  
Newspapers and estimates, showing the cost of ad-  
vertising, also many useful hints to advertisers, and some  
account of the experiences of men who are known as  
Successful Advertisers. This firm are proprietors of  
the American Newspaper Advertising Agency,

**41 PARK ROW, N. Y.**

and are possessed of unequalled facilities for securing  
the insertion of advertisements in all Newspapers and  
Periodicals at lowest rates. no18-3t

**Phoenixville Bridge Works**

OF PENNSYLVANIA.

**CLARKE, REEVES & CO.,**

**ENGINEERS AND BUILDERS.**

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

World respectfully call the attention of the officers of  
Railway Companies, and Engineers having charge of  
New Bridge Constructions, to their new

**Album of Designs,**

showing various styles of New Railroad Bridges, Via-  
ducts, etc., which they have either constructed or are  
prepared to construct. A copy will be mailed on appli-  
cation to our address, No. 410 Walnut Street, Phila-  
delphia. ap8-ly

**DANA BICKFORD'S**

NEW IMPROVED FAMILY

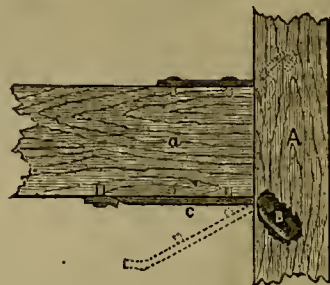
**KNITTING MACHINE,**

**\$1,000 TO \$5,000** A YEAR, AGENTS  
any section of the country, selling Dana Bickford's new  
and improved FAMILY KNITTER. This Machine is  
guaranteed (in its present completeness) to meet every  
want of the household for either domestic or fancy work.  
Price \$25. Send for circular and illustrated book.  
Address **DANA BICKFORD,**  
Vice-President and General Agent, 699 Broadway, N. Y.

## Miscellaneous.

**The Best Bedstead Fastening!**

**BARLOW'S PATENT, 1871.**



**Repair Your Bedsteads!**

By employing this new California invention, which is  
found to supercede all other Fastenings.

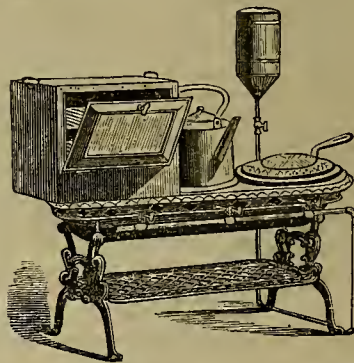
They are made of Wrought Iron, by machinery, and  
are easily applied quickly operated (as may be seen by  
the above illustration), and never break or wear out.  
Don't bother any longer with rickety bedsteads, but  
buy these fastenings and apply them yourself, or send  
to the inventor, who will repair any kind of bedsteads  
at reasonable rates. Examine this patent device, and,  
with the best workmen in the city, you will declare it  
to be the best and only perfect Fastening.

Orders received at my shop, corner of Sixteenth and  
Harrison streets, or at 320 Kearny street, Room 5.

19-2-tf-sa

**E. T. BARLOW, Patentes.**

**THE IMPROVED**  
**AMERICAN VAPOR STOVE.**



No Wood, Coal, Smoke, Ashes, Stovepipe nor Chim-  
neys, and Perfectly Safe, Economy and Convenience  
combined.

**WILLIAM FRIEL, Manufacturer,**

No. 69 and 71 Fourth street, S. F.

All kinds of Lamps altered to burn Patent Oil with  
or without chimneys. Gasoline and Patent Oils for  
Stoves and Lamps for sale. County Rights for sale.  
10-23-3m

**NEILSON & DOBLE,**

AGENTS FOR

**Thomas Firth & Sons' Cast Steel.**



**MANUFACTURERS OF**  
**Sledges, Hammers, Stone Cutters', Black-**  
**smiths' and Horse-Shears' Tools.**  
13 and 15 Fremont street, near Market, San Francisco  
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**SHEET IRON PIPE.**

THE

**Risdon Iron and Locomotive Works**

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM  
PIPE, of any size and for any pressure, and contract to  
lay the same where wanted, guaranteeing a perfect  
working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD  
WORK made to order. Standard sizes of Wheels con-  
stantly on hand. Wheels bored and pressed on, Axles  
turned, etc., at Reasonable Rates.

24-22-3m **JOSEPH MOORE, Superintendent**

**CAST IRON PIPE,**  
FOR WATER AND GAS.

PIPE of all sizes, of a very superior quality, is now  
being made at the

**Pacific Iron Works,**

In this city, under the Patents of Farrar & Whiting.  
17-23-3m **GODDARD & CO.**

**STEINWAY & SONS'**

**Patent Agraffe Pianos,**  
GRAND, SQUARE AND UPRIGHT.

Pianos to Let.



**A. HEYMAN,**

1 street, between Sixth and Seventh,  
Opposite old Capitol, SACRAMENTO.  
ma18-tf







## Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

## Altona Gravel Mining Company—Location

of works, Grass Valley, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of October, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 4th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 26th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, DAVID WILDER, Secretary.  
Office, No. 24 Merchants' Exchange, California street, San Francisco, Cal. nov 4-5w

## Eagle Quicksilver Mining Company—Lo-

cation of works, Santa Barbara County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of October, 1871, an assessment of Forty (40) dollars per share was levied upon each and every share of the mines of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any share upon which said assessment shall remain unpaid on Thursday, January 4th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. nov 4-5w

## Kearsarge Mining Company—Location of

works, Kearsarge District, Inyo County, California.  
Notice is hereby given, that at a meeting of the Trustees of said company, held on the 21st day of October, A. D. 1871, an assessment of five (\$5) dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room No. 10, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 18th day of November, A. D. 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 20th day of November, A. D. 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, J. L. KLINE, Secretary.  
Office, Room No. 10, Express Building, northeast corner of California and Montgomery streets, San Francisco, Cal. nov 4-5w

## Mina Rica Mining Company—Location

of works, Auburn District, Placer County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 15th day of November, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 18th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, GEO. R. SPINNEY, Secretary.  
Office, Room No. 2, third floor, 418 California street, San Francisco, California. nov 5-5w

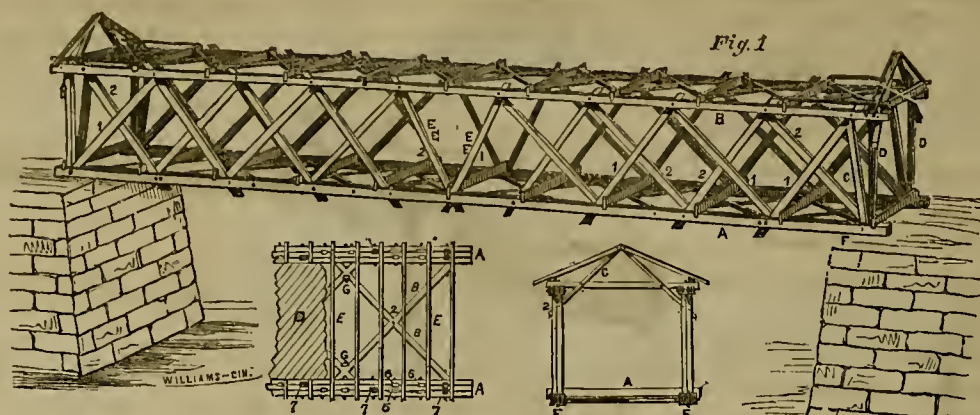
## Office of the Noonday Silver Mining Com-

pany—Location of works, White Pine Mining District, White Pine County, State of Nevada.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 4th day of October, A. D. 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Bourne, R. M., Trustee.....	782	5	\$ 1 00
Barton, W. H., Trustee.....	670	100	20 00
Barton, W. H., Trustee.....	714	50	10 00
Child & Jones, Trustee.....	113	90	18 00
Child & Jones, Trustee.....	732	10	2 00
Courson, G. A., Trustee.....	814	50	10 00
Conner, H.....	912	300	60 00
Dean, G. A.....	750	25	5 00
Dean, G. A.....	856	8	1 60
Farnum, E.....	77	100	20 00
Farnum, E.....	79	20	4 00
Fortman, B.....	818	100	20 00
Forrest, J. M.....	926	20	4 00
Hunt, Geo., Trustee.....	822	200	40 00
Hunt, Geo., Trustee.....	863	100	20 00
Hughes, W. A., Trustee.....	762	100	20 00
Hill, M. P., Trustee.....	763	5	1 00
Hill, A. E., Trustee.....	829	10	2 00
Hill, A. E., Trustee.....	842	50	10 00
Hill, A. E., Trustee.....	835	50	10 00
Hill, A. E., Trustee.....	445	95	19 00
Hill, N. H., Trustee.....	773	100	20 00
Kent, R. F., Trustee.....	914	100	20 00
Kent, R. F., Trustee.....	916	100	20 00
King, W. F., Trustee.....	738	4	20 00
Lisak, L. F., Trustee.....	773	100	20 00
McDonald & Whitney, Tr 667		200	40 00
McDonald & Whitney, Tr 668		80	16 00
Mitchell, J. S., Trustee.....	894	100	20 00
Martin, M. S., Trustee.....	614	100	20 00
Martin, M. S., Trustee.....	699	100	20 00
Martin, M. S., Trustee.....	774	100	20 00
McDonald, M. J.....	635	100	20 00
Mason, Thomas.....	798	50	10 00
Mason, Thomas.....	926	100	20 00
Mejers, A.....	908	100	20 00
Neal, C. S., Trustee.....	854	100	20 00
Noble, H. H., Trustee.....	903	50	10 00
Page, Nathl.....	69	33	6 60
Page, Nathl.....	558	100	20 00
Parker, W. C., Trustee.....	696	50	10 00
Pupat, G.....	889	80	16 00
Richardson, E. A., Trus.....	880	72	14 40
Richardson, E. A., Trus.....	890	100	20 00
Richardson, E. A., Trus.....	905	10	2 00
Smith, Phil N.....	120	10	2 00
Soren, Geo S., Trustee.....	823	50	10 00
Soren, Geo S., Trustee.....	830	50	10 00
Soren, Geo S., Trustee.....	850	100	20 00
Sleeper, Geo S., Trustee.....	876	100	20 00
Tibbey, E. S., Trustee.....	585	1	20
Uhler, J. Clem, Trustee.....	636	100	20 00
Uhler, J. Clem, Trustee.....	638	100	20 00
Uhler, J. Clem, Trustee.....	640	100	20 00
Uhler, J. Clem, Trustee.....	641	100	20 00
Uhler, J. Clem, Trustee.....	644	100	20 00
Westerheid, Chas.....	808	100	20 00
Williams, Henry, Trus.....	671	100	20 00

And in accordance with law, and an order of the Board of Trustees, made on the 4th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room No. 2, Express Building, northeast corner of California and Montgomery streets, San Francisco, on Monday, the 27th day of November, A. D. 1871, at the hour of 1 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. JOSEPH MAGUIRE, Secretary.  
Room No. 2, Express Building, northeast corner California and Montgomery streets, San Francisco, Cal. nov 11-3w

## PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON  
SMITH'S PATENT TRUSS PLAN.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.  
The timber used is placed so directly in the line of strain, that less material is required to support the same load.  
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.  
Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For All Public Bridges the Plan will always be open to competition.  
Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.  
F. MALOON, Secretary.

W. H. GORRILL, President.

## Nevada Land and Mining Company—Lo-

cation of works, Spruce Mountain, Antelope, Clifton and Johnson and Latham District, Elko County, State of Nevada.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 9) levied on the 12th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names. No. Certificate. No. Shares. Am't.  
Joseph Klopentstine, unissued 2000 \$80 00  
And in accordance with law, and an order of the Board of Trustees, made on the 12th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room No. 302 Montgomery street, San Francisco, Cal., on the 4th day of December, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. nov 18-3t

## Piermont Milling and Mining Company—

Location of works, Piermont Mining District, White Pine County, Nevada.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 4th day of September, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. of Shares.	Am't.
Briggs, Chas A.....	15	583 1/2	\$729 17
Briggs, Edgar.....	11	50	62 50
Carroll, Jerry.....	2	1750	2187 50
Godfrey, J.....	7	500	625 00
DeForest, J.....	8	500	625 00
DeForest, J.....	0	500	625 00
Emart, Michael.....	18	1750	2187 50
Fenseir, Louis.....	1	750	937 50
Fenseir, Louis.....	12	700	875 00
Flint, Benj.....	19	1750	2187 50
Godfrey, J.....	19	2625	3281 25
Hutchinson, Wm T.....	16	583 1/2	729 17
McClure, E O.....	17	583 1/2	729 15
Perkins, J E.....	4	1750	2187 50
Perkins, J E, Trustee.....	21	1000	1250 00
Perkins, J E, Trustee.....	22	1600	1875 00
Perkins, J E, Trustee.....	23	1000	1250 00
Tilden, N.....	13	500	625 00
Willson, James.....	13	1750	2187 50
Willson, James.....	14	875	1093 75

And in accordance with law, and an order of the Board of Trustees, made on the 6th day of October, A. D. 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 418 California street, San Francisco, Cal., on Friday, the 8th day of December, 1871, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. W. CLARK, Secretary.  
nov 14-4w

## Pocahontas Gold Mining Company—Lo-

cation of works, Mud Springs, El Dorado County, California.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 18th day of September, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names. No. Certificate. No. Shares. Am't.  
L. A. Booth, Trustee } 49 100 \$300 00  
for P. G. M. Co.....

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of September, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 25, Hayward's Building, 418 California street, San Francisco, California, on Monday, the 27th day of November, 1871, at the hour of 12 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. D. A. JENNINGS, Secretary.  
Office, Room No. 25, Hayward's Building, 418 California street, San Francisco, Cal. nov 14-4w

## Starlight Gold and Silver Mining Company

Location of works, Humboldt County, Nevada.  
NOTICE is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of November, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 15th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 2d day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, DAVID WILDER, Secretary.  
Office, No. 24 Merchants' Exchange, California street, San Francisco, Cal. nov 14-4w

## Seaton Mining Company—Location of

works, Drytown Mining District, county of Amador and State of California.  
NOTICE is hereby given that at a meeting of the Trustees of said company, held on the 27th day of October, 1871, an assessment of \$20 per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 438 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 2d day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 30th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, JOEL F. LIGHTNER, Secretary.  
Office, at No. 438 California street, San Francisco, California. nov 14-4w

## Stockholders' Meeting—The Annual

Meeting of the stockholders of the North American Consolidated Mining Company, for the election of Trustees for the ensuing year, and for the transaction of such other business as may lawfully come before it, will be held at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 4th day of December, 1871, at 2 o'clock P. M. nov 18-3t WM. H. WATSON, Secretary.

## Stockholders' Meeting—The Annual

Meeting of the stockholders of the Golden Sun Gold Mining Company will be held at the office of the Company, No. 511 Washington street, on Monday, December 11, 1871, at 6:30 P. M. By order of the President, A. W. CHAPIN, Secretary.  
San Francisco, Nov. 22, 1871. nov 25-2w



The King of Mineral Springs is the German Seltzer, and Tarrant's Effervescent Seltzer Aperient is its duplicate. Letters attesting its wonderful Tonic and Anti-Bilious qualities swarm in from every source. The question has been settled whether effervescent waters may not be equal to those which burst sparkling from the earth itself. They can; and the Seltzer Aperient, when undoubtedly pure and genuine, proves the fact. Be cautious. Accept none other.

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—OF THE—

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San Francisco Office, 331 Montgomery street (Stevenson's Building), Room 32, Third floor.

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E. P. HUTCHINS, Secretary.

N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.

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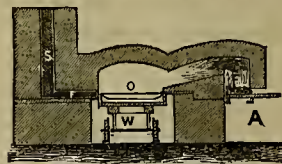
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—AND—

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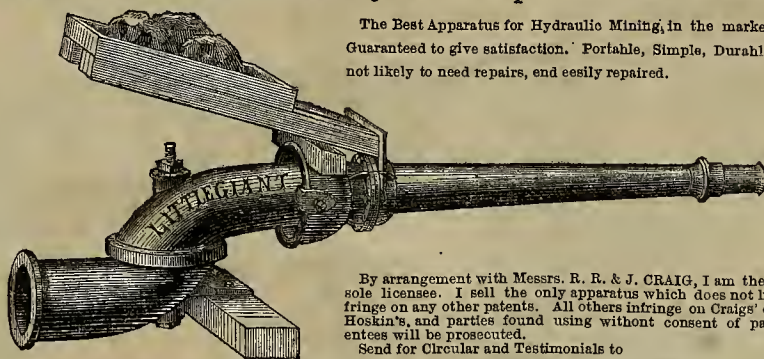
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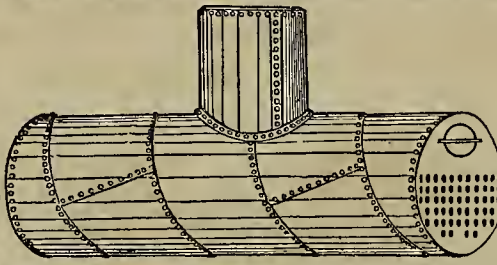
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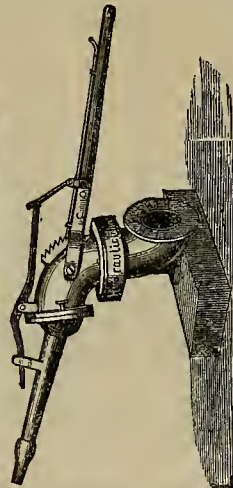
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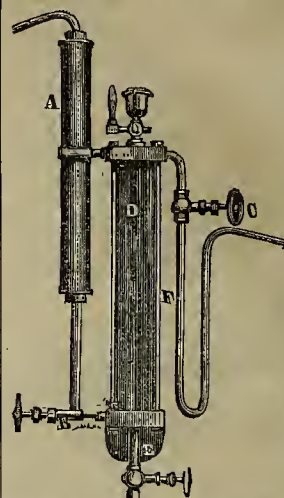
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DESCRIPTION.—D, is a glass chamber which contains the lubricant. O is a valve, connecting with cup which introduces the lubricant into chamber D. F, is the discharge pipe for the lubricant, provided with an inverted syphon to prevent steam from coming back from the steam chest or steam cylinder into the instrument. E, a waste pipe and valve for drawing waste water from the oil chamber before discharging the same. B, a valve and pipe to introduce water under the lubricant for the purpose of expelling the same; this pipe is connected to the boiler or steam pipe therefrom. A, is a steam condensing pipe or vessel, to provide a full supply of clean and pure water for the elevation of the lubricant from the oil chamber; the rapidity of action being regulated by the valves B and C. 18v18-tf

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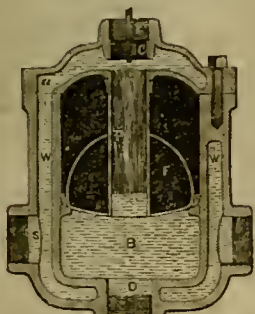
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# CRAIG & BREVOORT'S Patent Condenser for Steam PUMPS, &c.



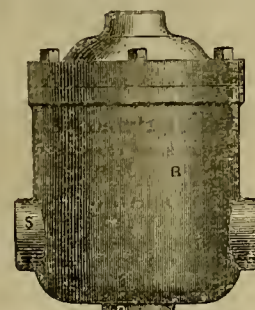
NO. 1.

The annexed engravings represent a Condenser intended to be attached to this ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.

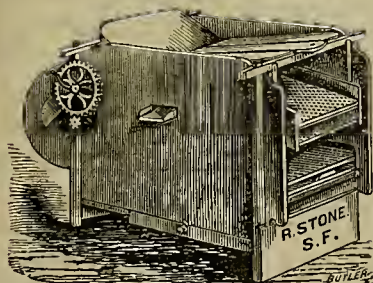


NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is especially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam.

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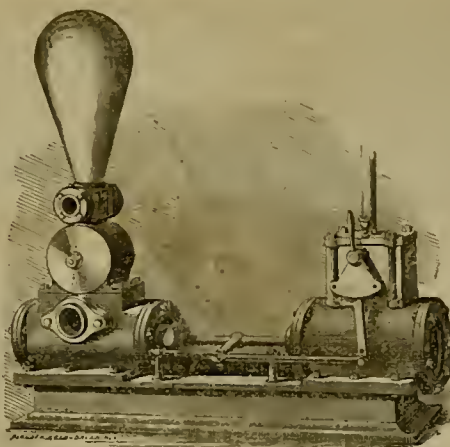
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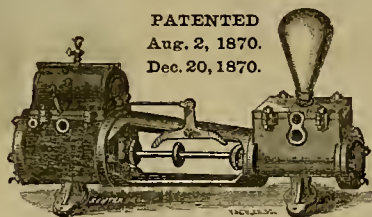


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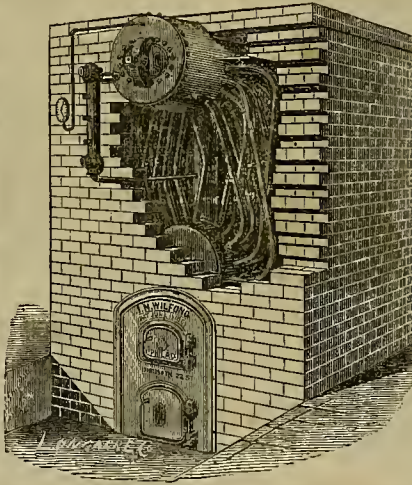
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Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

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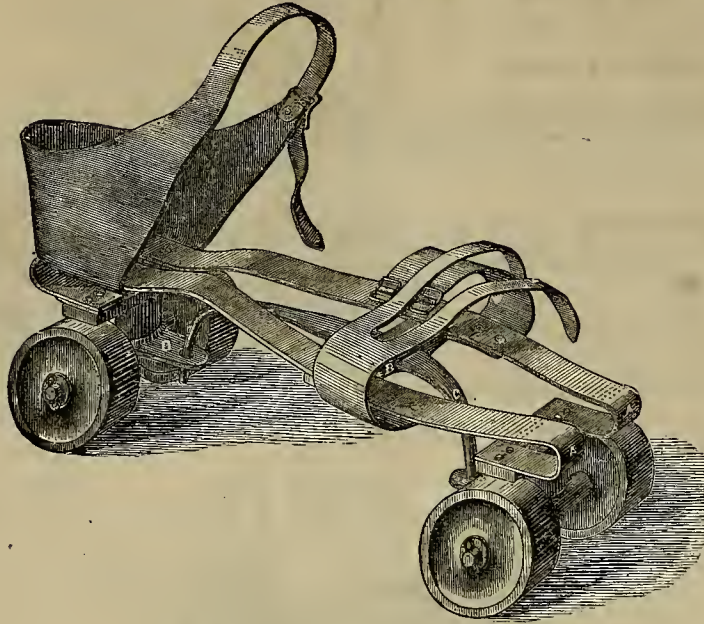
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BY DEWEY & CO.,  
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SAN FRANCISCO, SATURDAY, DECEMBER 2, 1871.

VOLUME XXIII.  
Number 22.

## AVELING & PORTER'S IMPROVED ROAD ENGINE.

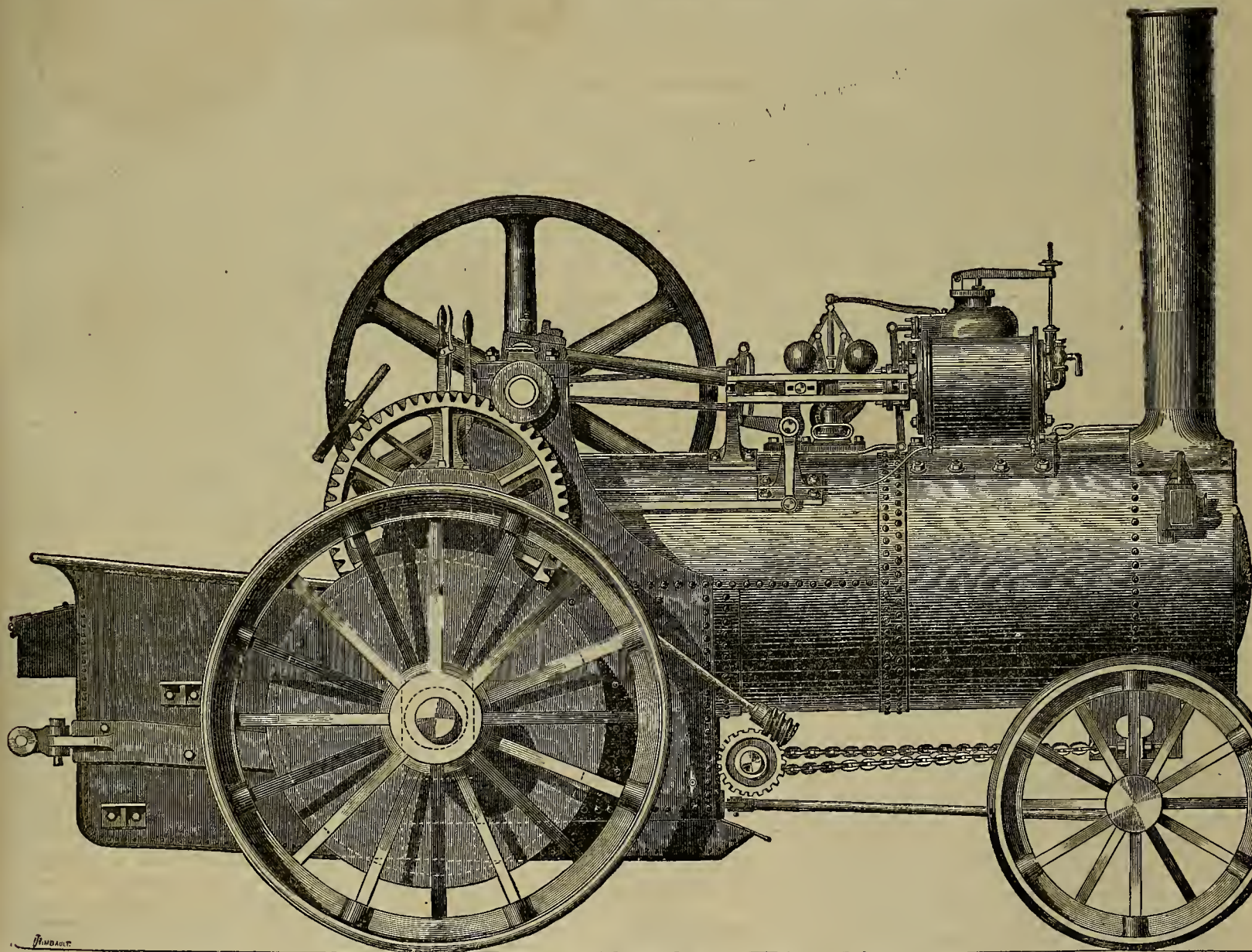
By Our New York Editor.

We present our readers to-day with a large illustration of Aveling & Porter's Improved English Road Locomotive. To

sults of a series of very exhaustive trials concluded during the month of September last, and undertaken by a committee of the Royal Engineers of the British Army; Col. Ray the chairman, Capt. Clayton the Secretary of the Committee, and many other distinguished members being present.

gine should not exceed that of the heaviest siege gun normal to battering trains—namely: 95 cwt. To meet this necessity, Messrs. Aveling & Porter have just constructed a "Steam Sapper," which is, we feel certain, the lightest engine of its power ever constructed, and with this en-

ing machines, etc. There are tenders for a supply of water and fuel, and the total weight of the engine with steam up, more than one cwt. of coal in the furnace and 50 gallons of water in the tank, was no more than 4 tons 15 cwt. and 3 qr., the driving wheels carry 3 tons, 14 cwt. 3 qr.



AVELING & PORTER'S IMPROVED ROAD ENGINE.

this road engine has just been awarded the first prize given by the Royal Agricultural Society of England, and among its competitors were the india-rubbertired Thompson Road Steamer, and eleven other engines.

Some particulars of the extraordinary performances of Messrs. Aveling & Porter's engine at the Wolverhampton trials in soft land have lately appeared in our columns, and we now add a more detailed description of the engine itself and its performances on hard roads, with the re-

Upwards of 600 of Messrs. Aveling's engines are in use in Europe, several of them being employed by the Royal Engineers' Corps for various duties connected with the removal of heavy pieces of ordnance and material of various descriptions, and they are answering the intended purpose excellently. One of the principal duties proposed for the very light class of engine with which the experiments were made, was the getting of siege guns and heavy artillery into position, and it was thought proper that the weight of the en-

gine these important trials were made

The boiler is of the locomotive type, as shown in our cut, and is lagged and felted, although the sketch, to show more clearly the construction of the boiler itself, omits this finishing process. It has 106 square feet of heating surface. The single cylinder is 7½ inches in diameter and 10-inch stroke, and the engine is so arranged that by simply removing a small pinion—the work of a minute—it is thrown out of gear and can be used for driving all kinds of machinery, including pumps, saws, thresh-

The driving wheels are of wrought iron and have wrought-iron spokes. The face of the wheel is ten inches wide, and the tire is fitted outside with wrought-iron spiral strips 2½ inches wide by 7 inches long and ½ inch thick; each is secured by rivets with the snaphead outside, and the whole wheel is extremely strong and light. The *Engineer*, in an excellently written article on these trials, says "the damage to the road was infinitesimal, a single horse going up the hill with half a ton of coal in

[Continued on page 339.]



# MECHANICAL PROGRESS.

## Engraving and Drilling by the Sand Blast.

The curious discovery of B. F. Tilghman, of Philadelphia, of the practicability of engraving on glass, and drilling the hardest substance by a simple blast of sand is exciting much interest both in this country and Europe. Very little force is required to produce the desired effect, to what one would naturally suppose would be required.

For merely abrading the surface of polished glass, or making "ground glass," a blast of air is used under a pressure of only four inches of water. The air is forced into a perpendicular tube about two feet below where the sand enters, and is thus carried with the blast against the sheets of glass, which are slowly moved across and about one inch below the lower end of the tube. About 15 seconds exposure of any given surface is sufficient to grind or thoroughly depolish the surface of ordinary glass. The sheets are carried along on endless belts, at the rate of 5 inches forward movement per minute.

By covering parts of the glass surface by a stencil or pattern of any tough or elastic material, such as paper, lace, caoutchouc, or oil-paint, designs of any kind may be engraved. There is a kind of colored glass made by having a thin stratum of colored glass melted or "flashed" on one side of an ordinary sheet of clear glass. If a stencil of sufficient toughness is placed on the colored side, and exposed to the sand-blast, the pattern can be cut through the colored stratum in from four to twenty minutes, according to its thickness.

The theoretical velocity of a current of air of the pressure of 4 in. of water, is about 135 feet per second; the actual velocity of the sand is much less. If a current of air of less velocity is used, say about one inch of water, very delicate materials, such as the green leaves of the fern, will resist a stream of fine sand long enough to allow their outlines to be engraved on glass. By graduating the time of exposure with sufficient nicety, so as to allow the thin parts of the leaves to be partly cut through by the sand while the thicker central ribs and their branches still resist, the effect of a shaded engraving may be produced.

For cutting stone, the inventor uses steam as the impelling jet; the higher the pressure, the greater is the velocity imparted to the sand, and the more rapid its cutting effect. In using steam of about 100 pounds pressure, the sand is introduced by a central iron tube, of about 3-16-in. bore, while the steam is made to issue from an annular passage surrounding the sand-tube. A certain amount of suction of air is thus produced, which draws the sand through the sand-tube into the steam jet, and both are then driven together through a tube about 6 in. long, in which the steam imparts its velocity to the sand, and finally strike on the stone, which is held about an inch distant from the end of the tube.

Under favorable conditions, using steam which he estimated as equal to about 1½ horse-power, at a pressure of about 125 pounds, the cutting effect per minute was about 1½ cubic inches of granite, or three cubic inches of marble, or 10 cubic inches of soft brown sandstone. With a steam jet of 300 pounds pressure, a hole 1½ in. in diameter was cut through a piece of corundum, 1½ in. thick, in 25 minutes. A hole 1 in. long and ¼ in. wide, was cut through a hard steel file a ¼ in. thick in 10 minutes with a jet of 100 pounds steam. The lightness of impact required to produce a drilling effect, even on a very hard surface was shown at the late exhibition of the American Institute in New York by a stream of small lead shot, driven by 50 pounds of steam, which wore a small hole in a piece of hard quartz. The shot was found to be only very slightly flattened by the blow, showing their velocity to have been moderate.

Among the curious examples of glass cut by this sand-blast was shown a piece of ordinary window glass, which, having been partially protected by a covering of wire gauze, had been cut entirely through, thus producing a glass sieve, with openings of about 1-12 of an inch, the intervening glass meshes being only 1-16 of an inch wide. This seems to have been produced more as a curiosity than for any practical purpose.

**FINISHING STEEL.**—Of all the methods or processes of working and finishing of steel, probably there is none extensively used about which there is so little known by mechanics in general as that of the "friction wheel," and this lack of knowledge has, no doubt kept its use confined within the bounds of almost a single class of work. It is generally known that the smooth edge of a soft steel or iron wheel, when run at a high speed, will cut tempered steel, soft steel, iron, and other substances very rapidly, but with it goes the belief that steel so cut is practically ruined for all useful purposes. This is true only to a certain extent, and is entirely avoidable by a proper speed of the friction-wheel and a skillful operator. A smooth steel wheel running with a periphery speed of from two to three miles per minute, will cut steel at a rapid rate, and without heating it to such an extent as to even change the color, the cutting wheel, too, retaining its form for a great length of time without being returned. Not only the spiral sides of augers and auger-bits are smoothed out and finished by friction-wheels, but the fine screw points of the same are wholly formed by the sharp edge of a soft steel plate run at the frightful speed of 14,000 revolutions a minute. The freedom from heating or burning the work, as well as the accuracy and beauty with which it is done, is unquestionably in a great measure due to the skill of the operator; still this skill may be matched by the skill of the inventors, and the friction wheel applied to hundreds of purposes yet unthought of.—*American Artizan.*

**A NEW BRONZE.**—We learn from a recent copy of the *Polytechnisches Journal*, that some investigators have succeeded in producing a new alloy which possesses peculiar advantages over others, for a number of processes in the arts. The peculiarity of the new compounds consists in the fact that it contains phosphorus as an ingredient. The authors have not divulged the details of the plan by which they succeeded in introducing this substance into combination. It is used with copper, or with copper and tin, either with or without the addition of zinc. The alloy produced is said to be peculiarly adapted for the construction of certain portions of machinery, as also for gun-barrels.

It seems, from an editorial note from Dr. Dingler, that the attempt to introduce phosphorus into the composition of several common alloys had been repeatedly made, but without success. The well-marked influence which its presence, in even trifling quantity, exerts upon the physical properties of irons, would seem to be the ground upon which the repeated efforts to utilize its presumable influence on other metals, is based; and there can be very little doubt but that the subject is worthy of the most careful attention of workers in metal.

**DIES FOR THREAD-CUTTING.**—The foreman of a large establishment in Philadelphia for making wrought-iron gas-pipe, says that the dies for threading the ends of the pipe should be made with more material than is absolutely necessary on the score of strength, in order that the surplus metal may aid in conducting away the heat. He says that in cutting the maximum number of ends without sharpening the dies, with a solid die made of the least possible amount of metal consistent with strength, as compared with one made of, say, four times the amount of metal, the large die will cut four or five thousand ends, while the small one will be dull after cutting fifteen hundred. The cutting edges are the same in both cases.—*Journal Franklin Institute.*

**THE NEW YORK DOCKS.**—It is stated that the work upon the rebuilding of the docks of that city is in progress. The plan, if carried out in accordance with announcement, will secure to the city a wharf-line of thirty-seven miles, and a pier area of more than five million square feet. It is designed to build a river-wall of solid masonry along the North and East Rivers, from which, at regular distances, piers, none less than sixty and many one hundred feet in width, are to be built at right angles.

**NEW MODE OF ORNAMENTING METAL.**—A new process of ornamenting metallic surfaces by electro-depositions from solutions consists in producing a deposit or plating of metal upon the surface of another metal, by painting the latter with a salt or solution of a salt of the metal to be deposited by means of a pencil, which is in metallic connection with a galvanic battery, the other pole of which is in metallic connection with the metal to be operated upon.

# SCIENTIFIC PROGRESS.

## Artificial Formation of Organic Bodies.

The first instance of the artificial formation of an organic substance from inorganic matter, was announced by Wohler, in 1828. He produced urea from cyanite of ammonia. By many this discovery was hailed as a consummation of the dreams of the alchemists, and wonderful things were expected. And, indeed, wonderful discoveries have since been made in this direction; but still the researches are comparatively slow of results. The second discovery of the kind was made in 1831, by Pelouze, who produced *formic acid* artificially.

From that time 15 years elapsed before another similar announcement was made, when in 1846, Melsens produced marsh gas. The next year acetic acid was discovered by three different persons—Dumas, Malaguti and LeBlanc. It was ten years till Bertagnini and Harnitzky, each separately produced *cinemic acid*.

From this time on, during the next decade, every year witnessed the discovery of some one or more artificial productions of organic compounds from inorganic substances—the order of discovery and names of which were as follows:—Glycols, malic and tartaric acid, sugar, alcohol, amylenes, amine, lactic acid, diatomic, leucic, melonic, carballylic acids, isomer of butyric alcohol, a fatty and aromatic series of acids, toluene, acetonitic, butyric, caporic, tartaric, toluic, oxalic, and malonic acids.

This brings us down to 1867, when Wurtz announced the discovery of *reine*, since which we have had picolin, the oil of rue, and alizarine. Several other discoveries have been made, but the facts with regard thereto are either uncertain or unattainable by the *American Chemist*, from which we condense the above.

With our improved methods of research, it would be highly censurable to attempt, adds the *Chemist*, to fix a limit to the onward progress of the synthetical formation of organic compounds; indeed, we believe that the chemist will cross over and possess all the hidden fields of organic chemistry.

**A NEW ZINC PAINT.**—A new zinc paint of remarkable stability, and particularly adapted to coating metals, is prepared in Belgium, by mixing zinc white and soluble soda or potash glass. It adheres better to metallic zinc than any other preparation, and diminishes the absorption of heat so materially that attic rooms under a roof painted with it show ten degrees less temperature than the unprotected rooms. It hearse all changes of temperature, cold, sun and rain, and what will give it great value is the fact that it will render fabrics, paper, wood and all tissues, entirely incombustible. Wood painted with it will resist flame for a long time, and, if the pores could be filled with it, there would be no danger of its bursting into flame. The same materials mixed in different proportions could be cast into molds and used very much as plaster now is. If the zinc were not too expensive, an artificial stone could be made by combining the silicate of soda with the oxide.

**SUBMARINE ILLUMINATION.**—Prof. Pepper has recently made some highly interesting experiments at the London (Eng.) Polytechnic Institution in submarine illumination by means of the electric light as applied in a new and ingenious apparatus, the invention of Messrs. Heinke and Davis. In this apparatus the jet is contained in an air-tight lantern, and produces a perfect and well-radiated light under water. The importance of this invention as connected with all purposes to which the diving bell is applied, can hardly be over-rated, and the professor had no hesitation in expressing an opinion favorable to its efficiency.

**COATING SHEET-IRON WITH ZINC.**—One of the most recently proposed methods of zincing iron is by passing the iron sheets through a flux of sal-ammoniac, then through molten zinc, again through the same flux, then through smoothing-rolls, and finally impinging thereon a current of cold air as it rises from the bath.

**NON-HOMOGENEITY OF SILVER AND COPPER ALLOY.**—W. C. Roberts has shown apparently to the satisfaction of the British Mint Authorities, that the homogeneous nature of an alloy of silver and copper is destroyed by the cooling of the molten mass, the silver being concentrated in the centre.

## New Glass Cement.

Professor Böttger prepares cement of divers colors and great hardness by mixing various bases with soluble glass. Soluble soda glass, thoroughly stirred and mixed with fine chalk, and the coloring matter well incorporated, sets in the course of six or eight hours as a hard cement; it is capable of a great variety of uses. Well-sifted sulphide of antimony gives a black mass, which, after solidifying, can be polished with agate, and then possesses a fine metallic luster. Fine iron dust gives a gray-black cement; zinc dust makes a grey mass, exceedingly hard, which, on being polished, has a brilliant metallic luster, so that broken or defective zinc castings can be mended and restored. Carbonate of copper gives a bright-green cement; sesquioxide of chromium gives a dark green; Thenard's blue, a blue; litharge, a yellow; cinnabar, a bright-red; carmine, a violet-red cement. The soluble glass with fine chalk alone gives a white cement of great beauty and hardness. Sulphide of antimony and iron dust, in equal proportions, stirred in with soluble glass, afford an exceedingly firm black cement; zinc dust and iron in equal proportions yield a hard, dark-gray cement; all adhere firmly to metal, stone, and wood. As soluble glass can be kept in liquid form and the chalk and coloring matters are cheap, the cements can be readily prepared when wanted, and the material kept in stock ready for use, at little expense. Soluble glass is fast becoming a most important article of chemical production.

**SUBSTITUTE FOR GUN POWDER IN COAL MINES.**—Mr. S. P. Bidder, of England, has recently introduced an ingenious device, which, aside from its practical utility, possesses an important value in the interests of humanity, in the fact that by its use, gunpowder can be dispensed with in coal mining, and perhaps in some other underground workings where the material to be operated on may not be too unyielding.

The device consists of two separate parts, a drill for making a preparatory channel into the seam and a long arm which is carried down this channel.

The same individual has also produced a new form of miner's safety lamp, the novelty being in a lock with which the miner cannot tamper. It is fastened by a bar of iron which is nowhere accessible from the outside, but which is drawn down by the action of a powerful electro-magnet, to be kept in the colliery office for the purpose, and on which the lamp must be placed in order to open it.

**AERONAUTIC COMPASS.**—The efforts to keep up communications between Paris and the outer world during the recent siege led to the invention of several ingenious contrivances connected with ballooning, not the less interesting being Mr. Janssen's aeronautic compass, the object of which is to enable the aeronaut to ascertain at any moment both the speed and direction of the balloon. It consists of a graduated glass disc with a hole in the centre; at a certain distance above the central hole is fixed a small eye-hole, and on one of the points of the circumference of the disc is fixed a small compass. The apparatus is suspended perpendicularly outside the car. It may be mentioned in this connection that, in a communication to the Academy of Sciences, M. de Fonville expressed the opinion, as the result of his experience, that no attempts at the direction of balloons will succeed except above the clouds.

**THE ABSORBENT POWER OF RED PHOSPHORUS.**—An interesting paper on the "Absorbent Power of Red Phosphorus" is contributed to the May number of the *Gazette Chimica Italiana* by Fausto Sestini, from the Laboratory of the Royal Technical Institute of Udine. The author finds that red phosphorus absorbs many substances without combining with them after the manner of porous charcoal. Thus it may be made to take up 3,369 per cent. of iodine, a considerable quantity of sulphur, roaniline, etc. This power of "chemical adhesion" may be easily and strikingly shown by shaking powdered red phosphorus in a test tube containing a colored solution of iodine in bisulphide of carbon. When a sufficient quantity of phosphorus is used the whole of the iodine is taken up and the solvent rendered colorless. Rosaline is similarly removed from an ethereal solution, and a portion of it may be again recovered unaltered from the phosphorus by washing with alcohol.



## CORRESPONDENCE.

### San Diego Mines.

EDITORS PRESS:—Since my last letter, no interesting changes in business or mines have taken place in Julian District, until very recently.

#### The Owens Company

have sunk their shaft to the depth of 180 feet, at the bottom of which they have a well defined ledge five feet in width. They started a drift south from the shaft, and in going a few feet the ledge opened out to seven feet in width in decomposed ore, and now two men can take out rock faster than it can be hoisted with the whim. The ore is of good quality, the entire ledge prospecting well, and, from the prospects, will no doubt pay well. This is the most promising development yet made in the district, as no other ledge has been prospected so deep, and proves that our mines are permanent ledges, growing larger and better with the depth. This mine is rendered more valuable, because there is no necessity for blasting.

#### The California Company

have timbered their shaft in splendid style, and, although the ledge was reduced to a seam of quartz that did not show the color of gold for many feet, confined by hard iron rock, at the depth of 90 feet the formation became softer, and the ledge widened out to two feet, containing some free gold, and prospecting well. They have just got their works enclosed, so that they can keep the work running all winter.

#### Mines and Mills.

The Hayden Company are working slowly but surely; their rock always pays well, and when they have a crushing, they have the satisfaction of knowing that they have the money to divide only between two owners. The Helvetia moves along in her quiet way, taking out and working good pay regularly. Mr. Woodward's new discovery, that I spoke of in my last, bids fair to become an important mine; he is now having some of the rock crushed as it comes from the ledge, in Gunn & Reynolds' mill, and it shows well on the plates, and judges say it will pay well. De Fries' and Gunn & Reynolds' mills are kept constantly running in the daytime, water being too scarce to run night and day. We had a severe storm on last Saturday night, and expect plenty of water soon.

#### San Felipe Canon, Banner District.

Things have been very quiet for a few weeks. In consequence of the abundance of water in the Redmann mine, Mr. Whitney was obliged to shut down the work and send to San Francisco for pump and engine, which have arrived, and will soon start up; the mine will afford rock enough to keep the McMechan mill running. The Antelope mill has also been idle a short time, awaiting the return from San Francisco of J. M. Tiernan, with additional machinery. This will soon be started for regular running, with new machinery. The Antelope, Chapparel, Kentucky, Madden and Ready Relief are all at work, and looking well. The Big Blue is having fifty tons of ore crushed at De Fries' mill, which is variously estimated as returning from \$50 to \$80 per ton.

#### The Golden Chariot,

which paid \$182 per ton, first crushing, and \$156, last crushing, is now looking better than ever, with a ledge nine feet wide; the boys say they are sorry that they bonded their mine to Mr. Wilson for \$65,000, as they have more than that in sight. There is much more to say about the developments now being made here, but knowing that your columns are always crowded, I will defer further notice until next week.

L. B. H.

Julian City, Nov. 15th.

### The Northern Quicksilver Mines.

EDS. PRESS:—Your correspondent recently made a flying trip to Lake county, with the intention of visiting the quicksilver mines, Clear Lake, the Sulphur Banks, Borax Lake, etc., and other points of interest in that interesting section of the State. Our party was fully equipped with arms, ammunition, hooks, lines, hammers

and other paraphernalia for the capture of game, fish, minerals, shells, etc.

The first point of interest we visited was the

#### Oakville Quicksilver Mine.

This mine is situated near Rutherford's Station on the Napa Valley R. R., 15 miles from Napa, and 16 miles from Calistoga, but a few hundred yards from the edge of the valley, which at this point is well defined. From the entrance of the mine one can have a fine view of the surrounding country, the valley with its fine growth of magnificent oaks, the mountains on the opposite side covered with chamisal, and further north Mt. St. Helena, and the pine-covered ridges of Lake county. The mine was first located in 1864, afterward abandoned, again taken up by Mr. W. T. Lockhart; it is now owned by an incorporated company, O. P. Sutton, of San Francisco, President; W. T. Lockhart is General Superintendent, and by his kindness our party was invited to examine the mine and works. They were just heating up their

#### New Furnaces,

(Riotte & Lockhardt's), which promises to make a great saving in the cost of reduction; this furnace is fed continuously, and has a capacity to reduce 12 to 16 tons of ore per day; with the old furnace 140 tons of ore were reduced, which produced from 50 to 110 pounds of mercury to the ton of ore, or an average of about 75 lbs. It is expected that the same quality of ore reduced by the new furnace will produce an average of about 100 pounds per ton, besides making a considerable saving in fuel.

Some \$15,000 have been expended by the present owners in opening up the mine and building the works, which also include the cost of taking out about 800 tons of ore; they estimate 3,000 tons of ore exposed. Captain Williams, the Mining Superintendent, under whose guidance we examined the underground works, is quite enthusiastic as to the future of the mine, and he seems to understand his business thoroughly, which cannot be said of many of the mining superintendents in this State, who show a remarkable ignorance of scientific mining and mineralogy, but seem to "go it blind," continually expecting like Mr. Micawber that something will "turn up" in their favor.

After leaving Calistoga, one of our party either fearing that in our peregrinations we might make the acquaintance of a bear, or, as he claimed, that a storm was about to set in, insisted upon an immediate return. We arrived at Lower Lake in the evening after experiencing a very unpleasant day, and started next morning before breakfast, without seeing the "Lake," the Sulphur Banks, or any other natural curiosity which we had started out to see, and arrived at Knoxville the same day; saw Mr. Livermore, the Superintendent of the

#### Redington Mins,

who promised to show us around next morning; started early next morning for the mine, but as the individual of our party who had no taste for curiosities or science, insisted on returning and the wagon was about to start, I had to leave without seeing the Superintendent, or taking any items, except that the mine has about 100 men employed and that the buildings and works are the finest I have seen at any mine in the State. I fully intend to make another trip and examine the Redington and other mines in Lake and Napa counties to my own satisfaction.

ANON.

SAOKING EVERGREENS.—We learn from Mr. Kelsey, of the Oakland Nursery, that people complain a great deal that the young evergreen trees are not doing well. Mr. Kelsey has planted many thousands, tying up the roots in sacks and setting them in the ground, sacks and all, merely cutting the ropes. The sacks will decay in 14 days, and the trees have never failed to grow.

ACCORDING to recent and valuable estimates, our globe has a population of 1,350,200,000. Of this, America has 72,800,000; Europe, 287,000,000; Asia, 498,600,000; Africa, 188,000,000; Australia and Polynesia, 3,000,000. Language spoken, 3,600; religious sects, 1,000.

[Continued from page 337.]

a cart would do more." In a description of the little engine going up a hill having a maximum grade of 1 inch in 11, the *Engineer* says: "The net weight of the train, according to the Rochester weigh bridge, was 15 tons, 6 cwt., 2 qr., exclusive of the weight of engine. The gross load, including the engine, taken up Star Hill, was 19 tons, 19 cwt., 2 qr. With this load the engine just got up without any slipping of consequence, but it is probable that at the steepest incline she was loaded to the last ounce."

The chances are, we think, that this performance is unparalleled, and when we consider that the total weight of this little engine did not exceed 4 tons, 15 cwt., and that the weight on its drivers was but 3 tons, 14 cwt., it certainly is an extraordinary feat, and one which may well stagger the advocates of rubber tires and their extravagant statements as to the increased traction power to be gained by their use. The handiness with which these engines are moved about and turned in their own length, is not the least remarkable feature of their simplicity, and the fact that the whole machine is managed by one man, is a point gained in economy that lessens very materially the daily working expenses.

An engine such as we have been describing costs in New York \$3,000 in gold, and the expense of working it per day, including coal, man's wages, oil, etc., not more than \$6½. It can be safely depended on to haul 10 tons up inclines such as Star Hill, and will do this at the rate of three miles an hour. It will not be difficult to see the vast amount of saving that may be effected in the carriage of heavy material as compared with the employment of horses or mules.

From *Engineering* of Sept. 22d, we append some extracts of an article on the late performances of one of these small engines of Messrs. Aveling & Porter's manufacture, and side by side are placed results of trials of the Sutherland Road Steamer with Thompson's india-rubber tires and those of a 6-horse rigid wheel engine such as we have been describing:

On Tuesday last an interesting trial was made, on the road between Rochester and Chatham, of one of the light class of 6-horse traction engines constructed by Messrs. Aveling & Porter, of the former place. The principal gradients to be traversed had been accurately ascertained previous to the trial, and the latter was conducted under the immediate superintendence of Col. Ray, Royal Engineers, Capt. Clayton, R. E., the Secretary and other officers of the Committee.

The engine with which the experiments were made was similar to that which did so good a duty during the recent trials of the Royal Agricultural Society at Barnhurst. It had a single cylinder 7½ in. in diameter, and 10 in. stroke, and driving wheels 5 ft. in diameter, while the gearing was in the ratio of 17 to 1. The boiler was of the usual locomotive type, with 25 square feet of fire-box surface, and 84 square feet of tube surface, or 109 square feet of heating surface in all, while the fire-grate area was 4.15 square feet. The weight of the engine in working order was 5 tons 4 cwt. 1 qr., of which weight probably about 4½ tons was, when the engine was pulling, thrown upon the driving wheels. The latter, we should state, were of wrought iron, the tires having wrought-iron cross strips riveted on them diagonally.

The load consisted of four loaded wagons, weighing respectively 4 tons, 4 tons 10 cwt. 2 qr. 14 lb., 4 tons 8 cwt., and 2 tons 8 cwt., making together 15 tons 6 cwt. 2 qr. 14 lb., or, including the engine, 20 tons 10 cwt. 3 qr. 14 lb. This load was taken up the Star Hill, Rochester, in six minutes, the engine doing its work well, with scarcely any slipping, and the pressure of steam being 110 lb. From the section which we annex it will be seen that the total length of the Star Hill is 1,137 ft., in which distance it rises 63 ft., giving an average gradient of almost exactly 1 in 18. The steepest part, however, is 1 in 11, and by far the greater portion of the length is on gradients of 1 in 14, and 1 in 16. The length of 1,137 ft. accomplished in six minutes, gave a speed of 2.15 miles per hour.

[We will continue this article next week, with table showing the comparative performances of the two engines in question.]

### Keeping Fruit.

The question as to the best method of keeping fruit in this country, is a very important one, and is inducing many important experiments.

L. A. Gould, of Santa Clara, is perhaps conducting one of the most important and expensive experiments in the State. He has built a brick store-house, forty feet by eighty, in Truckee. Through the center of this building he has left a passage-way eight feet wide, and has filled all the rest of the space with boxes of apples. Strips of lath are laid on each tier of boxes, so as to give space for the circulation of air, and to hold them up as a body. The building is supplied with plenty of ventilation at the roof, but from what we learn, we fear there are not sufficient openings near the bottom to give proper circulation. Fruit will undoubtedly keep much better in a low temperature, and Mr. Gould is endeavoring to take advantage of this fact. If he makes a few mistakes this time, he will be able to avoid them next year. The experiment is an important one, and we shall watch it with interest.

Capt. Anderson, of Shady Run, five miles above Alta, between 600 and 1,000 feet below the highest altitude of the Central Railroad, keeps his fruit in a shallow bin under his house. His house stands about four feet above the ground, and the bin sets on the natural surface of the soil. The space under the house is well hoarded up, so as to keep the apples from freezing. He keeps his apples here, in good condition, till April and May.

We know of others who pack their fruit in clean sand, in boxes—let the boxes stand out in the weather; only taking the precaution to have the boxes so placed that all the water that falls on them will pass through the sand and drain out. Fruit keeps very fresh and juicy in this way, retaining all its natural flavor until late in the season. Our own experience is, that a cellar under or below the surface of the ground, is a poor place to keep fruit; the air seems to be too close and damp, and induces decay.

We have found that apples, placed in open boxes and left under the tree—screened from the sun, but subject to all the changes of the weather—keeps much better, in our valleys, than under a dry shed, or in a cellar. We have also observed that fruit grown in the mountains keeps much better than that grown in the valleys; and we think that eventually the country will depend for its winter fruit mainly on the mountains, and that, that grown in the valleys will be chiefly dried or preserved.

We would be glad if fruit-growers would give us facts within their knowledge, in reference to this interesting subject. We will publish them for general information.

### Items in Brief.

THE tobacco factories of New York and Brooklyn employ 20,000 children.

A SILVER ledge has been discovered near Astoria. Thirteen claims have been located. The excitement in the neighborhood is high.

HAND-made lace of all the industries of France has suffered least by the war, being chiefly carried on by women.

THE hair on a camel weighs about ten pounds, and sells for more than £20, which shows that it was not only in the days of Mahomet that the animal bore a great prophet.

A PROJECT for uniting the Black and Caspian Seas by a canal according to the plan of Captain Blum, is engaging the attention of the Russian Government. The cost is estimated at about \$50,000,000.

THE Old Colony Railroad in Massachusetts in 1868 gave a free pass to all who would build houses in the village of Wollaston Heights. The result has been that the paying passengers from that station to and from Boston are more than ten times as many now as three years ago.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### AMADOR COUNTY.

**KENNEDY MINE.**—Jackson *Ledger*, Nov. 25th: The rock being taken from the lower levels is looking remarkably well.

### CALAVERAS COUNTY.

**RICH SPECIMEN.**—Calaveras *Chronicle*, Nov. 25th: We have been shown an exceedingly rich specimen of quartz taken from the Gwin mine. The piece of ore is a curious intermixture of slate, quartz, sulphurets and gold—the latter predominating; a stratum of such rock is developed as the levels are run.

**WOLVERINE MINE.**—The work of prospecting the lead has proved the existence of 3 ariferous chimneys known as north, middle, and south chimneys. The latter has been "stoped" out 126 feet, the quartz extracted averaged over \$25 per ton. The new engine shaft passed through a part of the middle chimney 121 feet from the surface. At that point some excellent quartz was taken out containing gold in visible quantities with galena and iron sulphurets. The north chimney was intersected by the shaft at 182 ft. To the depth now reached—220—the quartz composing the chimney has rapidly improved. The fissure is 2½ ft. wide between walls and is gradually widening as the shaft increases in depth. The rich stratum recently struck is about 6 inches wide, and consists of a beautiful dark blue quartz, rich in gold, and the sulphurets of iron and galena. The best ore taken from the rich stratum recently discovered will pay as high as \$150 per ton, while none of it will fall under \$20 per ton.

### EL DORADO COUNTY.

**PLACERVILLE REPUBLICAN.**, Nov. 23d: All the mines in this vicinity are now looking up.

We hear two new quartz mills talked of to be put up in this vicinity the present season.

The Robertson gravel mine is paying largely. Some of the gravel taken out pays as high as \$600 to the car load.

The new quartz mill being erected at El Dorado for Davidson & Theiss, is nearly completed.

### INYO COUNTY.

**STRIKE.**—Inyo *Independent*, Nov. 18th: A. Wingard, Supt. of the Silver Sprout mines has shown us a quantity of ore which is pronounced to be the finest ever produced in this county. It appears to be a singular combination of some of the richest characters of silver ore, chloride and black sulphurets, while particles of the white, native silver are seen, with now and then good "colors" of gold. The shaft is 56 ft. in depth, the ledge 7 and the ore 5 ft. in thickness. Its average value will be \$1,000 per ton, and probably more. The walls are nearly perpendicular, smooth and perfect and the 2 foot "gouge" is being rapidly crowded out by the "pay," which grows richer from top to bottom.

**EAST OF THE INYO RANGE.**—D. E. Hunter gives us the following: At Gold Mt. dist. north of Death Valley, Shaw & Co. were working ore from the "State Line" lode by means of a horse power arastra and making about \$10 per day. This is said to be a large and extensive ledge of gold bearing quartz. A lot of the ore worked at Belmont yielded \$170 per ton. Several men were running rockers, and making fair wages, on some placer diggings about 8 miles southeast of Palmetto.

**CERRO GORDO.**—Enterprise, Nov. 22d: The mines in Cerro Gordo are all doing well. They improve as depth upon the leads is attained, and the smelting furnaces are turning out cords of bricks of silver and lead. The ores of the dist. are almost without exception argentiferous galena.

### LASSEN COUNTY.

**RICH ROCK.**—Plumas *National*, Nov. 18th: The Providence, Co. of Hayden Hill have lately put up a small mill on their mine and the result of the crushing indicates that they have one of the richest mines in the northern part of the State. J. D. Goodwin informs us that the Co. cleaned up, for a run of 11 days with 2 stamps, 3,500 ozs., of amalgam worth about \$4 per ounce.

### LOS ANGELES COUNTY.

**SAN GABRIEL RIVER MINES.**—Los Angeles *News*, Nov. 18th: The Roberts Co. has rigged up the hydraulic machinery, lately received from S. F., and will commence piling in a few days. The Ferguson Co. has been hydraulicizing during

the last few days, and took out \$500 from a small patch of ground. Other Co.'s are at work tunneling and packing the dirt to the river for washing, and are doing well.

### NEVADA COUNTY.

**UNION GRAVEL.**—Grass Valley *Republican*, Nov. 18th: This Co., at Columbia Hill, are making extensive preparations for hydraulic mining. Heretofore they have used about 400 inches of water day and night. As night work is not as profitable as day work, the Co. concluded to construct a large reservoir and use 1,000 inches 10 hours daily. This reservoir will be completed in about 3 weeks at a cost of between \$3,000 and \$4,000. Sixty men are employed in its construction. The Co. have run a hedrock tunnel 1,050 ft., and have 600 ft. yet to finish. To expedite the completion of the tunnel, the Co. are making arrangements to put in a diamond drill.

**HUESTON HILL.**—A crushing of 15 loads of rock from this old mine has paid \$1,893—or \$126 per ton.

**PERRIN MINE.**—The result of a crushing of 34 loads of rock from the Perrin mine was \$1,756, or \$57.64 per load.

**BANNER MINE.**—The Banner mill and mine employs 60 men. The lower level is 700 ft. down on the incline. Some excellent sulphurets ore is being taken out which prospects over \$100 a ton. The mill is running 20 stamps.

**MANHATTAN MINE.**—This mine, between the Pittsburgh and the Banner, near Nevada City, is being thoroughly prospected. The prospecting shaft is down 260 ft. on the ledge. From the bottom of the shaft drifts have been run 120 ft. The ledge is about 15 inches wide, and the ore prospects from \$20 to \$40 a ton.

**RISEING STAR LEDGE.**—The owners of the Rising Star (formerly known as the Wyoming) ledge, on Wood's Ravine, 2 miles west of Nevada city, are now taking out some excellent ore. The ledge is from 2 to 4 ft. wide, is worked without machinery, and is about 200 ft. above Deer creek. The ore from this ledge has never yielded less than \$20 a ton, while the highest yield was \$57.

**NEVADA QUARTZ MINE.**—Nevada *Transcript*, Nov. 24th: The Nevada Quartz M. Co., are "pushing things" in their new works. They are sinking the new incline on a large ledge and are taking out first rate rock.

**MINING LOCATIONS.**—J. F. Schulthess and others have located 3 ledges on Independence Hill, Grass Valley township, and consolidated them under the name of the Independent M. Co.

E. Alliston & Co. have located the waters of Shady creek, below Simpson's dam, in Bridgeport township.

F. Morlet & Co. have located 1,000 ft. on a quartz ledge situated on Little Rock creek, in Nevada township.

Monitor M. Co. has located 1,200 ft. on a quartz ledge, on the west side of Last Chance ravine, in Willow Valley.

**MINING IN NEVADA TOWNSHIP.** presents at this time a most encouraging prospect. The Banner, Pittsburgh, Pennsylvania, Manhattan, Nevada, and several others in the vicinity of Nevada City are being worked. The Providence is soon to be fitted up, and the Gold Tunnel is being worked. Besides those named there are a number of others which are being prospected or prepared for work.

In gravel mining there are also a number of claims which will be worked. The Co.'s on Oustomah Hill and at Cement Hill are getting ready for work, while the old Manzanita is being steadily worked. Recently some new locations have been made. At Blue Tent several large claims are fitting up and will be ready for work by the time water arrives.

**MINING WORK.**—Grass Valley *Union*, Nov. 24th: The Seven Thirty Co. is putting new timbers into the shaft, and will shortly commence to sink deeper on the ledge. Of late the mine has been looking well.

Daisy Hill Co. is timbering the mine in a substantial manner, preparatory to making extensive developments. The steam machinery for hoisting and pumping will soon be at work.

### PLACER COUNTY.

**SHANNON CLAIM.**—Placer *Herald*, Nov. 25th: The claim shows plenty of free gold where opened.

### PLUMAS COUNTY.

**PAYING.**—Quincy *National*, Nov. 18th: Betterton, who owns the new discovery at Mohawk Valley, has got his arastra running, and from 2 tons of rock crushed, cleaned up \$75.

### SAN DIEGO COUNTY.

**BULLION.**—San Diego *Union*, Nov. 16th: The shipment yesterday, amounted to

\$1,300, principally from the Julian and Banner mines.

### SAN LUIS OBISPO COUNTY.

**THE CAMBRIA MINES.**—San Luis Obispo *Tribune*, Nov. 25th: At the Pine Buttes, miners are flocking in from Cambria and other places. A large number of claims have been staked off, and 3 Cos. are working. In the claim where the vein was originally struck a tunnel has been run in 65 ft. and a well defused vein of quick-silver-bearing ore opened.

### SIERRA COUNTY.

**GOOD CLEAN UP.**—Mountain *Messenger*, Nov. 18th: The new 20-stamp mill, at the Keystone, was cleaned up on Wednesday, after a run of 30 days, and the result was over \$18,000 gold, over 900 fine.

**ALLEGHANY.**—Fields, who works near the bridge, on Kanaka, recently found a nugget valued at \$1,600; also several smaller ones.

### SISKIYOU COUNTY.

Grass Valley *Union*, Nov. 18th: Frank Morse of this place returned yesterday from Siskiyou county. He informs us that mining in that region is in its infancy, so far as quartz is concerned, and that there are more inducements there for quartz mining than in any part of California he has visited. The Black Bear mine, has a ledge 11 ft. thick, which pays, by mill process, \$80 to the ton. Other discoveries have lately been made which will call great attention to Siskiyou county in particular and to the mining interests in general.

The Lash mill and mine in Humboldt Dist. continue in full operation. The ledge in the 5th level is 7 ft. wide, showing a fine body of ore. A large quantity of rich sulphurets are piled away for future reduction.

### TULARE COUNTY.

**COAL.**—Visalia *Delta*, Nov. 23d: Several parties have discovered what they deem to be good coal veins, in the mountains to the Northeast of here.

**DISCOVERY.**—Visalia *Times*, Nov. 18th: Charles Converse, some time during the latter part of last month made the discovery of a quartz ledge, which bids fair to prove a rich one. The gold in the rock is plainly visible to the naked eye. The ledge is about 3½ ft. wide and bears every indication of proving valuable. It is in the mountains about 50 miles northeast of Visalia.

## Nevada.

**FISH CREEK DIST.**—Eureka *Sentinel*, Nov. 19th: We have met many owners of claims from this dist. within the last few days, and they seem unanimous in asserting that they have a big thing. Some specimens shown us were rich in silver and carried sufficient percentage in lead, to make good smelting material.

**PINTO.**—Cor. same: The near approach of the completion of the Pinto Mill and Furnace, 5 miles distant, has given an impetus to everything, and never since its discovery has the camp been so flourishing as at present.

The principal mines of the dist. are owned by the Pinto S. M. Co., the Maryland, Michigan, Mountain Chief, and Uncle Sam. Since their purchase, work has been prosecuted vigorously upon the whole of them, with a force of 40 men. There are hundreds of tons of ore lying on the dumps, some of it assaying into the thousands, and all of it fine milling rock.

Of these mines, the Maryland is perhaps the most important. The main shaft is down about 200 ft., on a slight incline, running in fine ore the entire distance. Fifty ft. from the surface is a drift, running in ore from the north side of the incline, and raising to the surface about 50 ft. from the main shaft. This drift connects, through a winze, with another drift at the depth of 100 ft. This, with still another at the depth of 175 ft. below the surface, in which a magnificent body of high grade ore has lately been uncovered. They have followed it down about 15 ft. and the quantity is steadily increasing. The main shaft is being sunk rapidly in order to connect with a tunnel which is being run about 125 ft. below the bottom of the shaft. This is already in 450 ft. leaving but 100 ft. to go.

The Michigan is down 110 ft. with an unbroken ledge from top to bottom. A tunnel run on the level strikes the shaft 30 ft. from the surface, and 25 ft. below this, is a drift running under the tunnel 50 ft. Twenty-five ft. further down is another drift running on the ledge 50 ft. each way from the shaft, and at the bottom another running 70 ft. on the level which has not a break in it, and is in splendid working order, it being only necessary to stoop out from one drift to another, to take out immense quantities of ore.

The Mountain Chief has been sunk 112

ft. A tunnel 130 ft. in length connects with the shaft 50 ft. from the surface. Thirty-five ft. below the tunnel is a drift running from the east side of the shaft, and following the level for 90 ft. At the bottom is a drift east and west 100 ft., in which men are stooping out and breaking down large quantities of high grade rock. The ledge is traceable for nearly a mile on the surface.

In the Uncle Sam they are working 4 men, who are taking out nothing but ore, which assays from \$175 to \$300. A tunnel has been run into the hill 50 ft., at the entrance of which a shaft was sunk 30 ft., and from this point a "raise" was made following the ore, and breaking in the tunnel some 30 ft. from its mouth. The men are working in this tunnel, breaking ore from both sides, and from all indications there is a large body of it.

The Silver Stone, the property of Capt. Adams & Co., is down about 75 ft. with numerous drifts at various distances from the surface, every one of them, as well as the shaft, displaying large bodies of ore, some of it of remarkably high grade.

**EUREKA.**—Cor. Reese River *Reveille*, Nov. 22d: Quite a stir is looming up among our mining sharps about the late rich strike in the Tiptop mine, Ruby Hill. From the recent explorations a large body of high grade smelting ore has been exposed.

### ELY DISTRICT.

**BULLION.**—Pioche *Record*, Nov. 19th: W. F. & Co. shipped since Nov. 12th, 59 bars valued at \$114,208.34.

**ASSAYED.**—From the 1st of Nov to the 13th, J. Cahill has assayed bullion of the value of \$111,490.08.

**PROGRESSING.**—The head work for the hoiler and engine on the Lightning shaft of the Raymond & Ely Co. has been completed and part of the machinery is already on the ground.

**RESUMED WORK.**—Work has been resumed on the Silver Chief mine, immediately beyond and adjoining the Alps mine. The prospects are most flattering, and the iron ore encountered in the ledge at a depth of 60 ft. is running out and chlorides are coming in. A cross ledge, named the Silver Monarch is also being worked, and at a depth of 7 ft. chlorides were found.

**PIOCHE MINE.** Within a short time this mine will be in full operation again.

### HUMBOLDT.

**BULLION.**—Unionville *Silver State*, Nov. 25th: Amount shipped from the Arizona mine since our last issue, was \$7,834.

**GALENA.**—Cor. same: A rich deposit of galena ore has been struck in the Veritas mine, alias the South Ex. of the Avalanche, one-fourth of a mile south of this town.

### REESE RIVER.

**METACOMB MILL.**—Reese River *Reveille*, Nov. 17th: This mill which has been thoroughly repaired, and the new White or revolving tubular furnace added, has been running for weeks. It is a complete success.

**BREYFOGLE MINE.**—It has been reported, that this mine has undoubtedly been found about 150 miles south of White Pine on the same range of mountains. The lode can be traced for 8 miles and averages \$9,000 to 19,000 per ton.

### WASHOE.

The ore coming from the Crown Point is assaying from \$40 to \$120 per ton.

The yield of the Chollar-Potosi last week was \$42,450.

The new double cages are now in operation in the Halo & Norcross mine.

The mills upon Six and Seven mile Canyons are all in full blast upon ores from the Comstock lode.

**OPHIR SHAFT.**—The new Ophir shaft has reached 1,140 ft.

The timbers are all in place on the big dam of the Union Mill Company on Carson river, and the whole of the work on the structure is fast approaching completion.

**GLOBE MINE.**—Work will probably be resumed in this mine—situated between Gold Hill and American Flat—ere long. No work has been done on the lead for many years. Parties who have been examining it within a few days past find that it contains excellent ore. We were shown a number of assays running from \$40 to nearly \$200—3 or 4 of these assays were over \$150.

### WHITE PINE.

**BULLION.**—White Pine *News*, Nov. 18th: The bullion shipment from W. F. & Co's. office foots up, 5 days, \$65,784.32.

**EBERHARDT.**—The drifts from the Keystone show a small streak of ore.

**NORTH AURORA.**—In the Lady's Chamber 3 drifts are going ahead, northeast and south, to make connection with the Ward Beecher workings, and prospect the ground



between the two mines. There is a favorable indication that the pay-streak extends from the Lady's Chamber through to the Beecher.

**WARD BEECHER.**—65 tons of ore are hoisted daily from this mine through the Buchanan Shaft. The ore body in the Phillips chamber is showing unusually well.

**SOUTH AURORA.**—The drift from the Mitchell shaft to connect with the tunnel and also the one to connect the Turner with the Trewella shaft, started up last week.

**GENESER.**—A body of quartz has come in since last mention was made of the works.

**WARD BEECHER CON.**—The ore now in sight is of a higher grade.

**EAST SHEROYGAN.**—A rich body of ore, showing well in horn silver, was opened out in the Exchange incline recently, and also in the south original shaft. An assay of ore made from the latter turned \$20,264.80.

**GEN. LEE.**—Running ore out through the tunnel from the east drift.

**ENGAR.**—The east drift is pushed ahead from the 100 ft shaft with the usual force on top and below.

### Arizona.

**PINAL MINES.**—*Tucson Citizen*, Nov. 11:—Rich quartz mines have been recently found in the Pinal mountains, from 25 to 30 miles beyond Florence. Considerable of the ore has been brought to Florence, and pronounced worth \$10,000 per ton, but other reports put its value at from \$300 to \$400.

### Colorado.

**SHIPPED.**—*Colorado Miner*, Nov. 23:—The Stewart Silver Reducing Co. have shipped for the week ending Nov. 23d, bullion valued at \$6,558.04 coin; and the International Mill, Argentine, for the same time, bullion valued at \$2,255.50 coin.

The Wilson & Cass dressing works, wet concentration, will start up soon.

The mines in every portion of the country are yielding rich ore in large quantities.

We are under obligations for a specimen taken from the Paymaster lode, Argentine. The ore carries a high percentage of lead, and a respectable percentage of silver. The Paymaster is a first-class mine.

The Cliff mine has been placed in complete mining order, and drifting into the mountain on this vein has commenced. The mine is yielding ore of more than ordinary richness. An assay of average first-class ore lately gave a yield of 930 ozs. per ton.

**PEWABIC G. M. AND S. CO.**—*Central Register*, Nov. 15: This Co. are tunneling the Pewabic Mt., situated at the head of Graham Gulch, one and a half miles southwest from the city. A belt of very rich gold and silver veins are known to cross this mountain. The mouth of the tunnel is a little above the Pewabic lode, and extends southward into the mountain 507 ft. It cuts, in its course, the belt of lodes referred to, at right angles, having already crossed 7 veins, but at too little depth to find them of marked value, until now, in the breast of the tunnel, they are cutting one of great strength. We found 7 ft. in width of vein material already cut, and the south wall not yet reached. This lode is struck by the tunnel about 175 ft. from the surface of the ground, following the dip of the vein. The ore is iron and copper pyrites, and argentiferous galena. An assay gave gold at the rate of \$16.54 per ton, and silver \$31.72, making \$48.26 per ton.

**CARBON.**—The west shaft of the Caribou mine, 200 ft. from the shaft, is now sunk to as good pay as any portion of the mine, making 300 ft. in length on the vein in which the exploration shows no dead ground, but an even crevice of the richest silver ore. The main shaft is constantly improving as depth is gained.

The Seven-Thirty is worked by a level westward from the main shaft, on a vein of 18-inches of the highest grade ores.

There is much interest in the development of the Wahash lode by Corning & Co., who are desirous of erecting reduction works as soon as they become satisfied that the pay vein of their mine is permanent. The depth attained is about 35 ft., and thus far it has proved regular and rich.

The Grand View Co. have completed their buildings over the mine, and are again raising \$500 ore.

**CARIBOU POST, NOV. 18:**—The Hinds & Heter's stamp mill, recently removed here from North Clear Creek, and put up to water-power on the Middle Boulder, at Brown's, started on Monday.

**IDAHO LODE.**—*Central Herald*, Nov. 15:—At present the mine is not being worked to anything like its capacity, as the owners are negotiating a sale.

Last week the Black Hawk tunnel, below Gregory Point, advanced 12 ft. further into the mountain and is now 400 feet long. The head of the tunnel is near a shaft of the Fisk lode, and will intersect the Fisk crevice about 75 ft. below the bottom of the deepest shaft.

### Idaho.

**ASSAYS.**—*Idaho World*, Nov. 16:—We are indebted to B. M. DuRell, for the following statistics of assays of gold dust made at the Banking House of DuRell & Co., of this city, during the month of Oct.: Number of bars run, 121; value, \$92,608.75.

**ENLARGING DITCH.**—K. P. Plowman has been engaged for several weeks in enlarging his ditch, which taps Moro Creek 7 or 8 miles above Idaho City. The job will be completed in about 10 days.

**WARRENS.**—*Cor. Lewiston Journal*, Nov. 11: The Resene ledge continues to yield up to expectation. The receipts week before last were \$750, and last week \$1,500, over expenses. The lowest levels, both east and west, continue to "shell out" rock of good quality and quantity. Negotiations have been entered into between Mr. Isenbach and the owners of the former 5-stamp quartz mill of Souther & Co., near Florence, for its purchase.

### Montana.

**THE SMELTING WORKS.**—*Helena Gazette*, Nov. 13th: A short visit exhibited to us the fact that they are rapidly approaching completion. The main building is finished, and to-day the 4 stacks, or furnaces, will be completed. The engine and boiler are in place, and the well nearly finished.

**SPICKLEN TROUT LEAD.**—This silver lode, at Phillipsburg has been leased to Col. Lyon. The Colonel is down 85 ft. and has a 9 ft. crevice in the Lower level. He is running his mill day and night—running a No. 40 screen.

**RICH RETURN.**—On Friday Judge Turnley cleaned up a run of 8 tons of selected ore, from the Whitlatch mines on the Park Lode, which yielded \$900.

**PROSPECTING PARTY.**—*Missoula Pioneer*, Nov. 16th: Prof. House and party returned last week from their prospecting trip across the Bitter Root and Missoula rivers.

**PHILLIPSBURG ITEMS.**—*Helena Herald*, Nov. 16th: Capt. Plaisted and James H. Brown have leased or are about to lease, the St. Louis mill, to crush custom ore. They have a few men opening ledges.

Col. Lyon's mill is completed, and the process of reducing the ores of the Trout mine has already been inaugurated by roasting with salt preparatory to amalgamating, which will soon be commenced. He has over 20 men employed.

Estell, Holland & Ullery have discovered a new ledge near the old Camanche, which shows a good quality and fair quantity of milling ore.

**CABLE.**—At the lower level from the Cameron shaft is in 140 feet, and prospects are favorable for striking quartz soon. The mill will start up under favorable auspices in 2 weeks. The Miners & Mechanics tunnel is in about 1,160 ft. in the vicinity of the lead, and will strike it 350 ft. from the surface.

### Utah.

**BULLION.**—S. L. "Tribune," Nov. 23d: W. F. & Co. received on the 16th, from Raymond & Ely, Pioche, 16 bars silver bullion, 2,696 lbs., valued at \$51,305.46., consigned to New York. On the 11th they received from the Meadow Valley Co., 14 bars (1,627 lbs.) of silver bullion valued at \$16,491.68 coin, consigned to N. Y. On the 20th they received from Raymond & Ely, Pioche, 16 bars of fine bullion—\$52,756.17, to be forwarded to N. Y.; and on the 22d, they shipped to New York, 16 bars of fine bullion from the Meadow Valley Works, worth \$20,743.24.

**WOOD & CUTTING** shipped on 18th, 4 loads of base bullion East; 1 to Detroit, and 3 to New York. Two of the cars were from the Sultana works, in American Fork. On the 21st they shipped to New York 2 car loads from the Sultana works, American Fork.

**OPERA.**—The 3 smelting furnaces lying idle for months, are all to start up for a winter's run. The old Pioneer furnace has been purchased for S. Waterman, and will be run under the superintendence of A. L. Brown. The Hidden Treasure, Sevier and Last Chance are being vigorously worked, and are producing large quantities of ore.

The Wasatch smelter, has been sold to the Utah M. and S. Co. (the English Co.), who are putting it in condition to run for the winter.

The Lion Co. are pushing work on their mines and shipping quantities of rich ore. The Silver Exchange is working and shipping ore, and ranks second only to the Lion in richness.

**TINTIC.**—A large number of the mines will be worked through the winter. Among these are the Swansea, Sunbeam, Argenta, Black Dragon, Galena Bed and James Bird.

**OLD NEBRO.**—In the Olive Branch lode 2 men take out from 2 to 3 tons per day, of galena and carbonate ores, containing 75 per cent. lead, and 40 oz. of silver.

**COLUMBIA DIST.**—Considerable work has been done on the Gold Eagle, Liberty Hill, and a fine body of ore is in sight. The ledge is from 2½ to 3 ft. in width, dipping to the west on an angle of 45 degrees. The ore is carbonate and galena, assaying \$75 silver per ton and carrying 80 per cent. lead.

Montezuma mine, on Montezuma Hill, a spur running parallel with Liberty hill is looking well for the amount of work done. Upon this hill are the Valley Tan, Silver Cross, Lookout and Chimney Corner, and all are looking well, galena and carbonate ore being found in most of them. The Valley Tan shows a body of high-grade ore. Liberal Hill is another spur running

parallel with the Montezuma. Upon it are the Utah Chief, Washington North and South, St. Louis, and others. The Washingtons are the most developed and show a different class of ore, principally carbonate, intermixed with small bunches of galena and of a very high grade. The ledge is about 5 ft. wide, and an incline down 10 ft. shows a solid ledge of ore.

**LION HILL.**—*Cor. S. L. Herald*, Nov. 18th: The Tiger mine is working 15 men and taking out good ore. The Silver Exchange has a shaft down 45 ft. sunk within a short distance from the open cut into the mine. This shaft follows a vein of splendid ore about 20 inches in width to its entire depth. This mine never looked so well as at present, and the same may be said of the White Star, the adjoining claim on the east. The Lion with its interlacing connections is reported sold to an English company. No work is being done upon it, or them, and the sale is reported as the cause.

**CAMP LLOYN.**—The contract price at which the Silver Cloud mine was sold was \$500,000, and of this sum \$135,000, has been paid. The owners have leased the Walker Bro's. mill, and have made a contract with Mr. Standish to freight ore (of which there is a large quantity on the dump) from the mine to the mill. The Queen of the West, shows a large quantity of medium grade milling ore on the dump, with an excellent prospect of a large and permanent lode of the same class of ore in the mine. Preparations are being made to work extensively the Sparrow Hawk, Last Chance, and Marian mines; and active work is to be immediately resumed upon the Mormon Chief and Grecian Bend mines on the south side of the cañon. Under the excitement inspired by the heavy sales of mining property on the north side, the mines are being energetically developed. They lie in the direct line of the mines of Lion Hill, in East Cañon dist., and resemble them in the character of the ores they yield, and in the country rock formation. Among these mines are the Silver Circle and Flying Dutchman, with bold croppings—assaying upon an average \$42 per ton; the Red Eagle, with an average assay of \$150 per ton in silver; the Gentle Belle, an extension of the Eagle, and the Lewiston in the same vicinity.

### New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

**OXFORD GALENA MINING CO.**—Capital stock, \$2,000,000 in 20,000 shares. Trustees: W. H. Patterson, N. Hamilton, W. E. Lamb, C. A. Washburn, O. H. La Grange, S. B. McKee and O. C. Milton.

**LEMON MILL AND MINING CO.**—Capital stock, \$200,000 in 2,000 shares. Trustees: G. W. Clark, H. H. Schafer, J. Hahn, J. Fay and F. A. Alvan.

**ALPINE GOLD MILL AND MINING CO.**—Capital stock, \$1,200,000 in 1,200 shares. Trustees: J. W. Gashwiler, J. T. Boyd, C. N. Felton, T. H. Moyan and T. M. Luther.

**HAPPY CAMP HYDRAULIC MINING CO.**—Capital stock, \$1,200,000 in 12,000 shares. Trustees: W. W. Knight, W. H. Miller, H. C. Lee, Sannell Ambrose and J. R. Bell.

**BOWER GOLD MINING CO.**—Capital stock, \$1,000,000 in 20,000 shares. Trustees: G. L. Bradley, G. Bower, C. E. Elliott, Ira G. Hoyt and P. Bramlow.

**JUSTICE MINING CO.**—Capital stock, \$2,100,000 in 21,000 shares. Trustees: R. F. Morrow, G. Beaver, G. A. Thorne, G. W. Gordon and T. H. Williams.

**BOWERY CON. MILL AND MINING CO.**—Capital stock, \$3,000,000 in 30,000 shares. Trustees: L. J. Hanchett, H. Mayers, N. C. Fassett, J. Spear and J. D. Fry.

The following have filed certificates in the Secretary of State's office, Sacramento:

**SOUTH GULCH GRAVEL MINING CO.**—Capital stock, \$120,000 in 1,200 shares. Trustees: G. W. Gilmore, T. F. Cronise, G. F. Sharp and G. B. Merrill.

**SUGAR LOAF HYDRAULIC MINING CO.**—Capital stock, \$5,000 in 50 shares. Trustees: C. Waldeyer, D. D. Harris and C. F. Colton.

**SAN DIEGO AND SAN BERNARDINO R. R. CO.**—Capital stock, \$1,500,000 in 15,000 shares. Directors: D. W. Strong, J. W. North, A. D. Bomen, S. S. Chilverwell, D. B. Hoffman, W. H. Ogden and T. J. Higgings.

**LA JUNA WARM SPRINGS CO.**—Capital stock, \$10,000 with the right to increase the same to \$50,000. No. of shares, 500. Trustees: B. Hoffman, J. F. Gould, J. W. Strong and D. W. Strong.

**THE Meadow Valley Mining Company** will present to their retiring Superintendent, Mr. Chas. Forman, a handsome service of plate, in recognition of his satisfactory discharge of duty.

The tobacco manufacturers of the United States number 1,023, of which North Carolina has 205, Virginia 185, and Missouri 102.

### San Francisco Mining Stock Market.

THURSDAY EVE., Nov. 30, 1871.

Stocks in the early part of the week were quiet and irregular, but Wednesday morning were active and firm, Golden Chariot being the feature and carrying up other Idaho Stocks with it. It rose from \$5 to \$21 in 48 hours. The sales at the San Francisco Stock Board for the week ending Wednesday, November 22d, were \$2,517,500. Chas. Forman has resigned the Superintendency of the Meadow Valley Mine, and was tendered complimentary resolutions by the Board of Directors, who appointed J. T. Cassel to the vacancy. The weekly report of the Hale & Norcross mine shows 1,000 tons of ore extracted, and that of the Savage 740 tons. The special meeting of the Daney mine, to be held on December 28th, is called for the purpose of taking into consideration the increase of the capital stock from \$180,000 in 8,000 shares, to \$2,400,000 in 24,000 shares. From the Meadow Valley mine \$108,000 have been received on the November account. Thursday being set apart as a day of Thanksgiving there was no session of the Stock Board and our reports close with Wednesday afternoon's sales.

### Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

Nov. 23.	Highest.	Lowest.	Nov. 20.	Adv.	Decl.
Alpha Cons.	—	290	270	—	—
Amador	—	335	320	—	—
Belcher	—	370	370	35	—
Buckeye	—	33½	34½	—	½
Chollar-Potosi	32¼	31½	31½	34½	2½
Galena	11	12¼	10¾	12½	1½
Cons. Virginia	—	9	8	—	—
Crown Point	340	355	320	355	15
Empire	—	—	—	—	—
Empire Mill	—	—	—	—	—
Eureka Cons.	21½	21½	21½	—	¼
Eureka	23	23	23	—	—
Galena	12¼	12¼	10¾	12½	1½
Gould & Curry	96	104	97	102½	5½
Hale & Norcross	118	120	117	118	—
Ida Elmore	—	3	3¼	6½	—
Imperial	—	38	37	—	—
Kentuck	—	157½	135	157½	—
Mammoth	70	72½	70	—	—
Meadow Valley	32½	33½	33	33½	—
Occidental	—	—	—	—	—
Ophir	24	24	22½	24	1¼
Orig. Hld. Treas.	6¾	8	6	8	—
Overman	20	22½	20	22½	—
Pioche	8	8½	7¾	8½	¾
Raymond & Ely	73	78	72	78	5½
Savage	47½	48½	46½	48	½
Sierra Nevada	20	20	20	—	—
Silver Wave	—	—	—	—	—
Wash. & Creole	4½	4	4	4½	—
Yellow Jacket	57½	58½	55½	57½	—
St. Patrick	—	—	—	—	—
Seg. Belcher	22½	23½	19	—	—

### Latest Prices—Bid and Asked.

BID.	ASKED.	BID.	ASKED.
Alpha Cons.	—	Ida Elmore	—
Amador	—	Imperial	—
Belcher	350	Kentuck	150 155
Buckeye	33	Meadow Valley	33½ 34
Chollar-Potosi	33 33½	Ophir	23 24
Crown Point	345	Orig. Hld. Treas.	22 24
Daney	—	Overman	22 24
Eureka Cons.	21 21½	Savage	47 48
Eureka	21	Sierra Nevada	20 21
Golden Chariot	101 104	Raymond & Ely	76 77
Gould & Curry	117 119	Sierra Nevada	20 21
Hale & Norcross	117	Yellow Jacket	57 57½

### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY	OF SALE.
Altona, G. Valley, Cal., Oct. 31, 25c.	Dec. 4—Dec. 25*	
Bellevue, Placer Co., Cal., Nov. 1, \$1.	Dec. 6—Dec. 27	
Buckeye & M. Co., Nev., Nov. 10, \$1.	Dec. 14—Jan. 2	
Can. Vir. Ex. Ely Dist., Nov. 9, \$1.50.	Dec. 13—Jan. 6	
Caney, Lyon Co., Nev., Nov. 27, \$1.	Dec. 30—Jan. 18	
Early Consolidated, Cal., Oct. 30, \$40.	Jan. 6—Jan. 8*	
Ely Consolidated, Nev., Nov. 27, 50c.	Jan. 8—Jan. 30	
Emerald Hill M. Co. S. L. Co., U. S., Nov. 3, 10c.	Dec. 11—Jan. 2	
Golden Chariot, Idaho, Nov. 10, \$3.	Dec. 23—Jan. 15	
Highland S. M. Co., Nev., Oct. 9, 10c.	Nov. 13—Dec. 4	
Ida Elmore, I. T., Oct. 19, \$2.	Nov. 24—Dec. 16	
Kearney, Inyo Co., Cal., Oct. 21, \$5.	Nov. 27—Dec. 25*	
Kincaid Flat M. Co., Cal., Oct. 11, \$2.50.	Nov. 13—Dec. 4*	
Lillian Hall M. Co., Ely Dist., Nov. 18, 50c.	Dec. 27—Jan. 23	
Magnolia, Eureka Dist., Nov. 27, 25c.	Dec. 29—Jan. 19	
Mahogany M. Co., Idaho, Nov. 11, \$2.	Dec. 19—Jan. 10	
Meadow Valley, Ely Dist., Nov. 27, 50c.	Jan. 9—Jan. 31	
Nevada & M. Co., Nev., Oct. 19, \$1.	Nov. 24—Dec. 16	
Orig. Hld. Treasure, W. P., Nov. 24, \$1.50.	Jan. 3—Jan. 25	
Overman, Nev., Nov. 25, \$2.	Dec. 29—Jan. 16	
Overman, Nev., Nov. 20, \$4.	Dec. 25—Jan. 23	
Piermont, W. P., Sept. 4, \$1.	Nov. 9—Dec. 8*	
Peter Walter, Placer Co., Cal., Nov. 14, 75c.	Dec. 30—Jan. 9	
Phoenix, Lander Co., Nev., Nov. 21, 50c.	Dec. 17—Jan. 29	
Savage, Ely Dist., Nov. 23, \$1.50.	Dec. 11—Jan. 2*	
Sierra Nevada, Eureka Dist., Nov. 7, 50c.	Dec. 13—Jan. 8	
South Eureka M. Co., Oct. 11, 25c.	Nov. 14—Dec. 11	
St. Patrick, Placer Co., Oct. 18, \$4.	Nov. 22—Dec. 11	
Union Gravel M. Co., Cal., Oct. 11, \$2.	Nov. 12—Nov. 30	
Washington & Creole, Nev., Nov. 27, 50c.	Jan. 5—Feb. 1	

### MEETINGS TO BE HELD.

Cole S. M. Co.	Annual Meeting, Dec. 13
Daney	Special Meeting, Dec. 28
David Crockett	Annual Meeting, Dec. 4
Golden Sun M. Co.	Annual Meeting, Dec. 11*
Mamaluque G. M. Co.	Special Meeting, Dec. 14
Succor Mill and M. Co.	Annual Meeting, Nov. 29
North American Con. M. Co.	Annual Meeting, Dec. 4*
War Eagle	Annual Meeting, Dec. 11

### LATEST DIVIDENDS—(Within Three Months).

Black Diamond Coal M. Co.	Payable Sept. 15
Chollar Potosi, \$1.	Payable Sept. 9
Chollar Potosi, \$1.	Payable Oct. 10
Chollar Potosi, \$1.	Payable Nov. 10
Eureka Cons., \$1.	Payable Sept. 20
Eureka Cons., \$1.	Payable Sept. 20
Stonington M. Co., \$2.	Payable Sept. 18
Meadow Valley, \$1.	Payable Sept. 15
Meadow Valley, \$1.50.	Payable Nov. 8
Natoma	Payable Oct. 5
Pioche S. M. Co., \$1.	Payable Sept. 15
Raymond & Ely, \$1.50.	Payable Sept. 17
Raymond & Ely, \$3.	Payable Oct. 20
Succor Mill and M. Co., 50c.	Payable Sept. 15
Succor Mill and M. Co., 50c.	Payable Oct. 15
Yule Gravel M. Co., 50c.	Payable Oct. 5
Yule Gravel M. Co., 50c.	Payable Oct. 14
Yule Gravel M. Co., 50c.	Payable Nov. 4

\*Advertised in this journal.



## PATENTS & INVENTIONS.

### Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

#### FOR THE WEEK ENDING NOVEMBER 14.

ASH-PAN FOR STEAM BOILERS.—John Gates, Portland, Oregon.

ANIMAL TRAP.—Nathan S. Howell, Tualatin, Oregon.

BALING PRESS.—Thomas J. Corning, San José, Cal.

#### TRADE-MARK.

MEDICINES.—John J. Haley, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible by telegraph or otherwise at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

### The Gravel Hills of Placerville.

[Concluded.]

The physical characteristics and appearance of the black lava are entirely different from the white. Its general color (where not stained red by decomposition and higher oxidation of the protoxide and magnetic oxide of iron which it contains), ranges from an ashy or leaden hue, to a dark iron gray. In texture it is generally a well defined breccia consisting chiefly of angular fragments of all sizes and shapes, from the most impalpably fine particles which make up the matrix in which the larger fragments are imbedded, up to blocks of several tons in weight, the whole mass being often rather than otherwise, in this vicinity, firmly cemented together into a hard and solid rock. A certain proportion of the boulders which it contains are more or less rounded by the action of water. When this "black lava" is hard, and overlies in any considerable thickness the auriferous gravel, it forms, of course, a complete obstacle to the profitable working of the bank by hydraulic means, unless the gravel beneath is uncommonly rich, or else, being only moderately rich, the bank is very deep, and easily worked, when once uncovered.

In the Oldfield claim, now owned and worked by Chinese, this lava forms a capping from 20 to 30 feet thick over the gravel, so that it has to be blasted and broken into fragments small enough to be handled, and this removed before the gravel under it can be worked. Sometimes, however, if under-mined, a crack will open from top to bottom through this capping, a short distance back from the face of the bank and the huge block so formed will topple over into the claim where they are left if the ground has been already worked. Some of these blocks are many hundreds of tons in weight. One of the largest of them was measured and found to be 55 feet in length, while in no direction through the center was its diameter less than 25 feet. Its volume must be very nearly equivalent to, if it does not exceed, that of a 30-foot solid cube, and its weight in the vicinity of 2,000 tons. It is not difficult to understand that the gravel must be rich, which will pay even Chinese for working it under such disadvantages, and in the face of such an obstacle.

With reference to gravel channels, I have no doubt that the opinion of well informed practical miners here, so far as they go, with respect to the existence of anything like distinct or well defined channels, are very near the truth. It is extremely probable for example, that a deep, continuous channel, known here as the blue lead, extends from White Rock in a general southerly direction, beneath Dirty Flat and the two intervening ridges, to the extreme south end of Smith's Flat. But whether this channel from there on continues its general southerly course, coming out on the Wehner Creek side at, or in the vicinity of, the old "Try Again" tunnel, or whether it makes a sharp bend to the southward under Prospect Flat, is a question impossible to answer with certainty until developments have been pushed further under ground. Moreover, the apparent direction of the channel at Prospect Flat is southwesterly, which is its proper direction in case it should connect above with Smith's Flat channel. As all work at the "Try Again" tunnel, was long since abandoned, I do not know the precise character of the gravel or the appearance of the channel here, or what fur-

ther evidence there may have been in favor of its being the same as the Smith's Flat channel.

With reference to the general question of the origin and distribution of the auriferous gravel itself there have been no end of theories, and every agency that is capable of moving rocks, from salt water oceans to enormous glaciers and floating icebergs, has been called in to account for the phenomenon. With reference to most of these theories, it will only be necessary here to state the fact that no well informed man can study carefully for himself in the field over any considerable extent of this country, the character and distribution of this gravel, and the detailed structure of the banks, with the fossils which they contain without being led to the irresistible conclusion that there is but one possible agency, which is at all capable of satisfactorily accounting for the complex and intricate phenomena, and that this is to be found in the action of fresh and running waters.

This agency was involved in the old "Blue Lead Theory" which has been for so many years a favorite, not only among the best informed practical men, but among leading geologists and mining engineers as well. The gist of this theory may be stated in a few words by saying that it involved the supposition of the former existence here, of a great river with its branches, the main trunk of this river being supposed to hold for one or two hundred miles, if not more, a general southeasterly course, nearly parallel with the present main crest of the Sierra, before the mountains were uplifted. But the detailed and extensive explorations of the gravel mines which have been made during the past two years by the State Geological Survey, have developed among other things, the fact that this theory too, is not only inadequate to account for the complex facts, but that it is not unfrequently in direct conflict with them. The questions involved are extremely complex, and it is no wonder that in the absence of systematic and extensive investigations of the facts in the field, the theories at first propounded should have been wide of the mark. Our own work in this direction is by no means as yet complete. What the true theory is it would be premature to attempt to develop here. But it is rapidly assuming shape in our minds, and the whole subject will be thoroughly discussed in the forthcoming Geological Report of Prof. J. D. Whitney, provided the coming Legislature shall furnish the requisite means for their completion and publication.

One other point may be noted as a matter of curiosity, if nothing more, which is the finding of diamonds in the auriferous gravel. During my stay here I have seen and recognized two of these diamonds in the hands of people who did not know what they were, but saved them merely as curiosities. The commonest shape of the diamond in this country is that of a solid or crystal, having twenty-four triangular faces. And another remarkable and easily distinguished peculiarity is, that these faces, instead of being perfectly flat, as is generally the case with the faces of quartz and other crystals, are very often curved, the center of each face being a little higher than the surface towards the edges. The diamond surface, moreover, is extremely hard, and scratches quartz with the greatest ease.

### Water Pressure.

EDS. PRESS:—Suppose we have two pipes of equal length, placed together in a perpendicular position, one of which is of a regular size its whole length, the other graduated in size, being small at the lower end, and larger as it goes up, both pipes being of the same size at the lower ends, the graduated pipe to contain (for instance), four times the quantity that the other is capable of holding. Now, when both pipes are filled with water, is there any difference in the pressure of the water at the lower extremity (no water being allowed to escape from either pipe); by answering the above question you will greatly oblige, etc. T. R. HUTCHINSON.

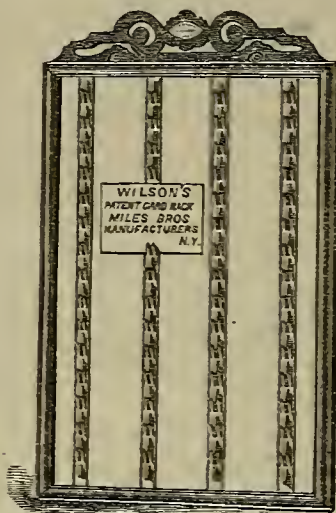
Ukiah, Nov. 13th, 1871.

There will be no difference in the pressure of water in the pipes above described; but the graduated pipe will discharge a larger quantity, provided both are fed to their fullest capacity and under a uniform pressure; for the reason that there will be less friction to be overcome by the water flowing through the graduated, than by that flowing through the uniform pipe.

MECHANICS, write for the PRESS.

### A Patent Card Holder.

The cards are held in the ornamental work or frame, here represented, by inserting their lower edges behind the spring points shown on the vertical parts of the frame. The holders are made simply by punching the points out of a sheet of thin brass, which has spring enough in the metal to make the holding points elastic. The cards are all held so firmly that jarring the frame, or a current of air will not disarrange them in the least. It was exhibited at the Mechanics' Fair, by Weister



& Co., No. 17, New Montgomery street, who will sell frames or rights. Several novel card holders are sold in New York; but this seems to us the most desirable and one of the cheapest. For rights for other States, address Miles Bros., Fulton street, New York.

### Sugar from Grapes.

EDS. PRESS:—Would you have the goodness to inform me, through the PRESS, if making sugar from grapes has ever been tried? Last week, when crushing grapes for wine, I took a 5-quart saucepan and filled it with juice and placed it on the cooking stove, and to my surprise I found, by the time it had half boiled down, it had become a thick, heavy syrup, and somewhat burned.

Would it not be worth while to call the attention of some of the sugar-makers to it, as grapes can be raised for less money than beets? S. B. PENTLAND.

Common crystallized sugar, as we have repeatedly stated in the PRESS, cannot be made from grapes. Grape juice, when carefully boiled down, gradually acquires a syrupy consistence. If the boiling is carried to a sufficient extent, and the resulting syrup allowed to cool and remain undisturbed for several days, it hardens into whitish granular tufts, similar to the "sugar" sometimes seen on "candied" raisins—in fact, the two substances are precisely alike. If this substance is submitted to a heat of 220°, it melts into a thin liquid, which, on again cooling, takes the consistency and appearance of honey. If, in this condition, it is exposed for a long time to the air, it will again become granulated.

If, in the first condition of granulation, it is boiled at a temperature of 270°, instead of 220°, it gives off more of its water (one-tenth of its weight) and hardens, on cooling, into a bright yellow, brittle mass; which, however, will soon absorb the one-tenth of water which it has lost in boiling, and deliquesce or "slack," like poor molasses candy. The only serviceable way to utilize grape sugar, is in its character as a syrup boiled down at a temperature of 220°.

Grape sugar, even when granulated and dry, possesses only two-fifths the sweetening power of crystallized cane or beet sugar. It is not, however, profitable to make it, either as a syrup or sugar, from grapes, for the reason that precisely the same article can be made, by a cheap chemical process, from the starch of potatoes or corn, much cheaper and equally as good.

### Extension of Patent Refused.

Important to Farmers and Plow Manufacturers.

Gang plows are one of the institutions of the Pacific Coast, and more patents are taken out for them than in any other State. The reason of this is, that farms here are usually of large extent, comprising hundreds and sometimes thousands of acres, and gang plows can be worked to more advantage than on most of the farms in the Eastern States. They give satisfaction wherever used, and are being generally adopted. The *Scientific American* of a recent date says:

The application of George W. Hildreth, of Lockport, N. Y., for an extension of his patent for a gang plow, has been refused. This patent was reissued last December. The leading features of the invention are these: crank supports, for adjusting the height of the frame from the ground; supporting wheels, so adjusted as to run upon different planes, one to run in the furrow and the others upon the sod; the axle made adjustable laterally; in brief, the axle has a triple motion, upward, downward and lateral, and it also vibrates on the center bolt. This plow is well known on the Pacific coast, and has been manufactured by Baker & Hamilton, of San Francisco. It is claimed that it will plow from two to four acres a day more than a common plow. The applicant appears to have been unfortunate in reaping no profits from his invention. He says: "I am getting towards three score years and ten, and have had a hard, up-hill business for years; and this gang plow business has contributed largely to my misfortunes." The extension was strongly opposed, and remonstrants claim that applicant has not used due diligence in introducing his alleged invention into general use, and that in his reissue he claims more than is his invention. A suit for infringement of this patent has lately been brought against Treadwell & Co., the damages being fixed at \$50,000.

### California Autumn Tinted Leaves.

It is generally remarked that in California we are denied the beautiful tints of autumn foliage so highly enjoyed by the lovers of natural beauty in New England and other Eastern States. But this opinion is not entirely true. We were shown by a lady in Oakland, a fine selection of tinted grape leaves received from Dr. Streunzel, of Martinez, which were quite varied and of as delicate a hue as any beautiful autumn tints we ever saw in New England. These leaves we observed were very tenderly cared for, and more highly prized for their lasting beauty than the collection of choice grapes of the rarest cultivation that came with them. Whether these foliage tints are due to the special climate of the valley in which they grew, or other peculiar reasons, we would thank the Doctor to inform us.

THE BEST FISHING PLACE FOR SALMON in the Sacramento river, is well known to be about Rio Vista. The reason of this, as explained by Mr. B. B. Redding, State Fish Commissioner, is as follows:—When the salmon return from the ocean they are infested with parasites which they rid themselves of by tarrying a while at this point, where the salt and fresh waters mingle. Again, in returning, a similar halt is made to rid themselves of fresh water parasites thus offering an extended and profitable fishing season at Rio Vista, while other parts of the stream are employed by Mr. Salmon more strictly as a thoroughfare.

At San Rafael, an association has purchased a tract of 4,000 acres adjoining the town, and it is contemplated to divide the tract into villa sites, and to exclude all unwholesome factories and trades from the new site.

DURING the month of October last, the Eastern shipments by railroad from Marysville embraced 3,460 pounds of wine, 60,284 pounds of fruit, and 2,443 pounds of unspecified freight.

WILD GAME is becoming plenty. It is said that 95 geese were killed at three shots on a lake near Salinas, Monterey county, last week.



## USEFUL INFORMATION.

## Position and Motion.

Some interesting facts regarding standing, walking, and lying down are grouped in a lecture by Prof. Burt G. Wilder. In man the great toe is the essential part of the foot in standing and walking. In the ape this is a thumb, standing out from the side of the foot, and has no power of supporting or propelling. The ape cannot carry himself erect. But put man on all fours, like an ape, and the enormous disadvantage appears at once. The head hangs as a great weight, with no adequate muscles to support it. The curve of the back is such that the knees touch the ground, and we have to raise the thighs in order to make the feet touch the ground. Man's foot is called a plantigrade foot—that is, it has the whole sole flat upon the ground. One other animal has a plantigrade foot, but he uses it in a different fashion; he lifts the whole foot together and puts it down flat, while the man strikes with the heel first and rolls forward upon each toe alternately. The erect attitude is maintained only by a constant thought unconscious control of the muscles of the leg by the brain. The length of the man is greater when he is lying flat than his height when he is standing. In the former case the body stretches itself; in the latter it settles down upon itself. A man is shorter when standing on one foot alone. He is shorter again when walking. For this reason ladies' skirts, which just clear the ground when they are standing, drag on the pavement as soon as they begin to walk. The different parts of the body are bent upon each other, and also swing from one side to the other. A very singular fact connected with walking is that one side of the body tends to outwalk the other. Persons with their eyes shut cannot walk in a straight line for any length of time; and persons who are lost in the woods or prairies are sure to travel in a circle. There is a greater tendency to wander off to the right than to the left.

**DRYING-OIL SUBSTITUTE.**—A composition for mixing with white-lead and other colors, to form a paint in lieu of linseed oil, turpentine, and the usual driers, has been lately brought out. The advantages claimed for this vehicle are, it dries very quickly. In less than half an hour after application it is sufficiently dry and hard to receive another coat. It is perfectly inodorous. A room can be used the same day it is painted. It is peculiarly adapted for painting offices, counting-houses, stairs, ships' cabins, and all work where time is an object. It cleans readily, and is not affected by soap or alkalis. It is economical in use, though the composition is in itself necessarily from the materials employed, dearer than linseed oil. In consequence of the body contained in the composition, three coats of paint mixed with it are equal to four of ordinary paint; and the great saving in the time always lost by workmen in going from one job to another, or waiting until such paint is dry, is more than sufficient compensation for the greater original cost. For example a street-door, which requires the attendance of a workman on five several days to complete the painting and varnishing, can by the use of this composition, be painted with four coats and varnished in one day. The material consists of methylated spirit, shell-lac, and castor-oil.—*London Artizan.*

**SMOTHERING A BURNING MINE.**—Some months ago a coal mine at Mauch Chunk, Pa., caught fire. The ordinary appliances for extinguishing such fires failing, the company has adopted the plan of a chemist who has undertaken to extinguish it with ammoniacal gas. The entrance to the mine has been closed up, and in front of it works have been constructed for generating the gas and forcing it into the mine. Two barrels of sal-ammoniac per day are used, and from the reports made during our visit, it is believed that the experiment will be a complete success, and that in a very short time the fire will be completely extinct. Such success will be most important in future cases of fire in coal mines; for there are cases where the fire has lasted for many years, as in the mine at Summit Hill, which will probably not be extinct until the whole vein is burned out. *Ex.*

The forests are dying out in certain parts of Virginia. The chestnut trees have already submitted to some deleterious agency, and their growth is nearly exhausted; and this year the oak, and in fact all the trees of the forest in certain sections are dying. No explanation of this disastrous visitation has yet been given.

**HOW A PERSON FEELS AT THE INSTANT OF A RAILROAD COLLISION.**—Col. W. W. Bennet was in the street railroad car which was recently run over, in Jersey City, by the New Jersey railroad train. The locomotive was going at the rate of 30 miles an hour when it struck the car a little quartering, lifting it some three feet from the track and smashing it into a thousand pieces. The car was crowded, and contained from 36 to 40 persons, two-thirds of whom were ladies. The Colonel, who was sitting near the door, perceiving there was no escape awaited the shock calmly. He says:—"Immediately the crash came, but I felt no movement of my body on the car, nor any pain; I became insensible; when I recovered I found myself on the cow-catcher of the locomotive, pushing toward Philadelphia; I was lying on my back with a body under me and a body over me, and my left hand was grasping a part of the locomotive; when the engine stopped, I crossed to the north side of the track, and started home with my face covered with blood; as I crossed the walk I saw the body of a man on the ground, and I tried to call for help but could not speak; I felt as if I was under the influence of a hideous dream."

Another person's experience was given thus:—"I heard a peculiar, rumbling sound, and afterwards terrible shrieks; as swift as thought came a crash of iron, glass and wood. I was lifted, as it were, and thrown, I knew not where; I struck the mud, and then knew that I was out of the car; I found I was in the cavity between the upper and lower tracks, and as I was lying in this hole the train was passing over me; I did not dare to stir lest I should lose a limb; I found that with the exception of slight bruises about the thighs I was uninjured; I was thrown 20 feet from the car."

**ANCIENT MODE OF KEEPING TIME.**—Bowls were used at a very early day for measuring time, from which water, drop by drop, was discharged through a small aperture. Such bowls were called water-clocks—*clepsydræ*. It was then observed how much water from such a bowl or cask, from sunrise to the shortest shadow, or noon, trickled down into another bowl placed beneath; and this time being the half of the whole solar day, was divided into six hours. Consequently, they took a sixth of the water which had trickled down, poured it into the upper bowl, and, this discharged, one hour had expired. But afterward a more convenient arrangement was made. They observed how high the water at each hour rose in the lower bowl, marked these points, and counted them, thus finding out how many hours there were till sunrise. With the Chinese, water-clocks, or *clepsydræ*, are very old. They used a round vessel, filled with water, with a little hole in the bottom, which was placed upon another vessel. When the water in the upper vessel pressed down into the lower vessel, it subsided by degrees, announcing thereby the parts of time elapsed. The Babylonians are said to have used such instruments; from them the Greeks of Asia Minor got them, at the time of King Cyrus, about the year 550 before Christ. But the Romans did not get the first water-clock before the year 160 before Christ.

**HOW FORESTS ARE PRESERVED IN EUROPE.** It is estimated that there yet remain in France, 2,700,000 acres of State forest, the revenue of which previous to the recent war, was \$8,700,000. Bavaria has about 2,000,000 acres of forest; Prussia, as it existed before the war, had upwards of 5,000,000 acres. In each of these countries, schools of forestry, under State control, are supported, in which men are trained in the scientific and economical management of the State timber-lands.

**SUBSTITUTE FOR GUTTA-PERCHA.**—A juice extracted from a shrub which abounds in Guinea under the name of *boleta*, is found, according to report, to be superior for many purposes to gutta-percha. The juice coagulates quickly when exposed to the air, and is without any disagreeable odor. When worked up it is more flexible than gutta-percha, while it appears to possess equal strength and durability.

The word Canada had a singular origin. When the Spaniards first visited the country they found neither gold nor silver, and went off saying "A Canadada," (there is nothing here). When the French came, the Indians tried to frighten them off by repeating it over and over, but the new comers took it for the name of the land, and so called it Canada.

## GOOD HEALTH.

## How to Secure Long Life.

Dr. Dio Lewis recommends that all who would secure a clear, fresh skin, bright eye, active limbs, a quick brain, and a cheerful, pleasant temper, and thus enjoy a long life, should live about as follows:

## Breakfast.

Oat meal porridge, with milk and sugar. Or, Graham mush, with a little good syrup.

Or, cracked wheat, with milk and sugar. Or, baked potatoes with bread and butter.

Or, beef steak or mutton chop, with baked potatoes and bread and butter.

If you are thin, and need fat, use the first three; if you are too fat, use the last named two.

Drink cold water, or a little weak coffee.

## Dinner.

Beef or mutton, roasted or stewed, with any vegetables you may like (though tomatoes should be used very sparingly), good bread and butter, and close the meal with a glass of weak lemonade. Eat no dessert, unless it be a little fruit, and eat nothing more until the next morning.

There is no rule in regard to diet about which I am so fixed in my convictions, as that nothing should be eaten after dinner, and I think that the dinner should be taken early in the day; not later, if it can be so managed, than two o'clock. In regard to the precise hour for the dinner, I am not so clear, though for myself one o'clock is the best hour; but in reference to the omission of the third meal, I have, after long observation no doubt whatever.

Hundreds of persons have come to me with indigestion in some of its many forms and have experienced such relief in a single week from omitting the supper, that I have, for a number of years, depended upon this point in the diet as the best item in my prescriptions for indigestion. I have never met one person suffering from indigestion, who was not greatly relieved at once, by omitting the third meal.

Cooked fruit is best for persons of weak digestion. I have met hundreds of people who would digest a large beef steak without a pang, but who could not manage a single uncooked apple.

I think certain dietetic reformers have somewhat overrated the value of fruit.

Avoid cake, pie, all sweetmeats, nuts, raisins and candies.

Manage your stomach as above, and at the end of ten years you will look back upon these table habits as the source of great advantages and happiness.

For thirty years I have been a constant and careful observer (I have no hobbies about diet), and in the light of my own experience and these long observations, I assure you that the table of habits I have advised, are vital to your health and happiness.

Pimples, blotches, yellow spots, nasal catarrh, biliousness, liver torpidity, constipation, sleepiness, dullness, low spirits, and many other common affections would generally disappear with the adoption of these rules.

[We will add, for the satisfaction of our readers, that Dr. Lewis, who here intimates that he practices what he preaches, presents in his own person about as fine an example of genial good health and wide-awake-tiveness as one ever meets.]

**INJURIOUS EFFECTS OF TURPENTINE.**—The *Manufacturer and Builder* says:—"Experience has taught that the so-called lead-paralysis, common among painters in the form of a loss of motion of the wrist joints, is chiefly produced by the habit of washing the hands in turpentine. It is probable that it is not the turpentine alone which produces this fatal result, but chiefly the particles of lead or zinc paint on the hands, which, by the turpentine, are brought in a condition to penetrate the skin more readily and to be absorbed; therefore, painters should avoid, as much as possible, the use of turpentine for washing the hands."

**CURIOUS FRAUD.**—The *Boston Journal of Chemistry* says, that "German saffron," which has been for a long time quite scarce and high, has recently been largely substituted by some enterprising cheat, who has produced a similar article for logwood and fustic moistened with heavy syrup, so ingeniously prepared as to deceive some of the most expert druggists. The amount upon the market is thought to be quite large, and it becomes druggists to examine closely this article whenever they purchase.

## Don't Rock the Cradle.

Even before the babe has seen the light, or very soon thereafter, has this instrument of unnatural oscillatory motion been prepared for its reception, having been deemed necessary, and for what? Mothers, did you ever ponder on the philosophy of this almost constant rocking of your child during its sleeping hours, unless you too are sleeping and cannot give the cradle a jog? You reply that you have thought no farther than this—that you have so much to do that it is a great object to keep the baby sleeping as long as possible, judging that sleep cannot harm the child, and the relief to you is so great.

You are part right. All sleep not superinduced by narcotics or by this soporific motion tends to good; farther than this to harm. The mother's arms while nursing her infant at stated, regular intervals, is all the cradle nature ever designed; and if it forgets its cunning and yields to the drowsy god, they quietly lay it in its little cot, supposing of course you understand that the best good of both yourself and child demands a crib by your bedside, where any little attention it may need may be readily rendered, instead of necessitating it not only to take into its tender, delicate lungs, the unhealthy emanations from the bodies of one or both of its parents, but also their magnetisms, which in far too many cases is detrimental from various causes, either the use of tobacco, poisoning every tissue, or spirituous liquors in the form of beverages or medicines. The time is slowly but surely coming when this cannot with truth be said, that parents poison their children in this manner; but it is with the present we have to deal, preparing the way for this coming time.

Leaving this phase of a very important subject for a future article, I will return to my subject—cradle rocking. "But how can this injure the child? I have always seen children rocked with no ill results," you reply. But how do you know that? Did you ever candidly weigh your child's best good against your work, or pleasure, and determine which turned the scale? I fear not in the child's favor, if you still persist in keeping one foot on the rocker, while the hands are busy, mayhap in fashioning and ornamenting its clothes to please the eye of the beholder, instead of making them for comfort, which still may be tasty. Reflect upon the probable effect on your brain, the seat of thought and reflection, of this long-continued motion, such as is given the child in rocking, and think you, it would tend to any concentration, any strengthening of power? Nay, but the reverse, and the brain of the infant is far more susceptible to the disturbance of its forces than the adult, and needs but to expand and grow normally in a quiet sleep induced by a healthy action of nature's forces. Mothers, study how to thus create healthy bodies, then the sleep will be quiet and refreshing, and your days and nights glide smoothly on.—*Central City Gazette.*

**A SINGULAR CASE.**—The *Lewiston Journal* says: Dr. Bill has in his possession a diphtheria membrane, removed from the throat of a girl of fifteen, who was attacked with the severest type of this terrible disease. The false membrane is about three inches in length, completely preserved, and is a perfect cast of the air passage from which it came. The film is a thick, white, tough, leathery substance, presenting the well known characteristics observed in attacks of this disease. The girl and her sister came to this city from the eastern part of the State to work in the mills, and was unwell on her arrival. She went to work one day, however, when she was taken down ill with diphtheria. The usual treatment in such cases was resorted to, but the patient grew worse, and breathed with great difficulty. On Sunday she had a violent fit of coughing, and seemed to be strangling. The nurse who had charge of her had the presence of mind to put her finger down the girl's throat, and seized the end of something which appeared loose there, and pulled out what proved to be the false membrane of which we have spoken. The presence of mind of the nurse saved the girl, who is recovering.

**THE MAGIC LANTERN IN DISEASE.**—The magic lantern has been successfully applied in London to the study of diseases of the skin, by Dr. Balmanno Squire. A transparent photograph of the patient is taken, then placed in a magic lantern; a strong hydro-oxygen light casts the figure enlarged on a white sheet, and in this way the smallest details are brought out with astonishing minuteness.



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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### San Francisco:

Saturday Morning, Dec. 2, 1871.

### Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Nov. 29, 1871.—Legal  
Tenders buying 90½; selling, 90½. Gold in New York  
to-day, 110½.

### Table of Contents.

Aveling & Porter's Road and Farm Engine— Ill.....	337
MECHANICAL PROGRESS.—Engraving and Drill- ing by the Sand Blast; Finishing Steel; A New Bronze; Dies for Thread-cutting; New York Docks; Ornamenting Metals.....	337
SCIENTIFIC PROGRESS.—Artificial Formation of Organic Bodies; A New Zinc Paint; Submarine Illumination; New Glass Cement; Substitute for Gunpowder in Coal Mines; etc.....	338
CORRESPONDENCE.—San Diego Mines; Northern Quicksilver Mines; Keeping Fruit; Items in Brief, etc.....	339
MINING SUMMARY.—Stock & Exchange Board; Market Report.....	340-1
Gravel Hills of Placerville; Water Pressure; A Card Holder—Ill.; Sugar from Grapes; Ex- tension of Patent Refused; California Au- tumn Tinted Leaves; etc.....	342
USEFUL INFORMATION.—Position and Motion; Drying-oil Substitute; How a Person Feels at the Instant of a Railroad Collision; Etc.; Good HEALTH.—How to Secure Long Life; Don't Rock the Cradle; etc.....	343
Mining Accidents; Recent Mining Discoveries; English Capital in Pacific Coast Mines; Hints to Miners.....	344
Iron Smelting Under Artificial Blast—Ill.; Talpey's Hand Sawmill—Ill.; Affairs in Ari- zona; Our Mining Interests Abroad.....	345
DOMESTIC ECONOMY; DOMESTIC RECEIPTS; ME- CHANICAL HINTS; LIFE THOUGHTS.....	346

### Mining Accidents.

On November 23d, a miner named Wm  
H. Hampton, had both ankles broken and  
the ribs of the right side crushed in, by a  
cave in the Eureka mine, at Grass Valley.

Giovanni Quirolo was killed in the Paugh  
mine, near Clinton, Amador county, on the  
18th.

Thomas Bodkelin, of Nevada, died at  
Bradshaw, from injuries received in the  
Tiger mine.

On Monday last, a miner employed in  
the Ohio mine, in Little Cottonwood  
Cañon, Utah, was carried away by a snow  
slide, and perished.

### Recent Mining Discoveries.

A rich gold-bearing quartz vein was re-  
cently discovered near Quartzburg, Mari-  
posa county.

New silver mines have been found in  
Arizona, near Prescott and in the Pinal  
Mountains.

Rich cinnabar leads have been struck in  
San Luis Obispo county, near the town of  
Cambria.

A rich silver ledge has been discovered  
near Astoria. Thirteen claims have been  
located and the excitement in that neigh-  
borhood is high.

WE have received the Eighteenth An-  
nual Report of the Superintendent of  
common schools for the department of the  
City and County of San Francisco, for the  
school year ending June 30, 1871.

ON FILE.—Argenta District, Montana;  
Notes from Montana; San Diego Mines;  
Letter from J. P., concerning Ward  
Becher and North Aurora mines.

## English Capital in the Pacific Coast Mines.

The recent introduction of English cap-  
ital into the mining enterprises of the  
Pacific States and Territories, will give a  
new and decided stimulus to this branch  
of industry, and afford means to thoroughly  
develop properties heretofore worked upon  
a limited scale. Although, as yet, invest-  
ments have been confined chiefly or ex-  
clusively to mines already developed, it is  
quite likely that ere long they will be ex-  
tended to undeveloped mines, when the  
fact is realized that by so doing they will  
be able to make terms more favorable to  
their interests. It is now some fifteen  
years since the English turned their backs  
upon California as a field for profitable in-  
vestment, but since then a great change  
has taken place. The cost of labor, of  
machinery, and of almost every appliance  
for mining, has been materially lessened,  
while the problem of increase of pay with  
depth in our quartz mines has been solved  
satisfactorily. The railroad affords facilities  
for visiting and examining into the mer-  
its of our resources, while by the use of  
the telegraph the superintendents are en-  
abled to communicate quickly with head-  
quarters and remove all "red-tape" diffi-  
culties.

The whole coast presents an unparal-  
leled field for the profitable employment of  
capital. We have plenty of raw material;  
all we want is skilled, intelligent labor,  
combined with capital, to make it avail-  
able. The question, Will American mining  
pay? has absorbed much attention, and  
been ably discussed, *pro* and *con*, through  
the columns of the English mining jour-  
nals, some of which have their regular  
correspondents here; while their editor-  
ials upon the affairs of the Pacific Coast  
would do credit to our own papers.

The caution which English capitalists  
exercise in the examination of mines, is  
well calculated to prevent the sale of worth-  
less or unproductive properties. Compet-  
ent mining engineers are almost invari-  
ably sent out to make thorough investiga-  
tions, and, upon their reports, a sale is  
consummated or the negotiation aban-  
doned. In some instances two or three  
experts have been required to make re-  
ports upon the same mine, before informa-  
tion was gleaned that was satisfactory to  
the intending purchasers. This caution is  
in every way commendable, and is a safe-  
guard both to the investors and the owners  
of good mines, and a matter which many  
of our capitalists might profit by.

There are many good mines west of the  
Rocky mountains, which, by enlarging  
their works and developing further, might  
be made to pay handsomely, but which,  
from the scarcity of capital and the high  
rates of interest here, are unable to make  
the requisite improvements, but which in  
European cities, where there is often a  
plethora of money, and a less rate of inter-  
est prevails, would be the best investment  
that could be presented to the notice of  
capitalists.

A number of mines of this character  
have been purchased in London during  
the past year, many of which are now pay-  
ing handsome dividends, and the shares of  
the companies have, in consequence, ac-  
cording to the English papers, taken an  
advance, some of them being considerably  
above par. This result is calculated to  
increase the confidence already manifest-  
ing itself in that country, in the richness,  
extent and permanence of gold and silver  
mines on the Pacific slope, and is opening  
up a new field for safe and profitable in-  
vestment. There can be no doubt that our  
mines, when worked intelligently and ju-  
diciously, promise larger returns than  
almost any other branch of industry; and  
there is no reason why, with proper man-  
agement, they should not pay monthly  
high rates of interest upon foreign capital  
expended in their development.

It is to be hoped that English investors

will continue to exercise their habitual  
caution in the selection of mining prop-  
erties presented to their notice, thereby giv-  
ing some of us a lesson, and protecting  
their own interests, as well as affording  
means for working many good and valu-  
able mines, which are in need of capital, in  
order to be made paying institutions.

### HINTS TO MINERS.—NO. 1.

In the great mineral belts of the Pacific  
slope there are, no doubt, nestled in the  
rocks which gave them birth, untold mil-  
lions, which only await this energy and  
perseverance of this and future generations  
of miners, that they may be poured, like  
the shower of Danaë, into the lap of civili-  
zation.

Though many have become somewhat  
discouraged at the gradual decrease in the  
extent of the superficial deposits of aurif-  
erous gravel, which have yielded so many  
millions of dollars, and which have given  
our State such an enviable and world-wide  
reputation, the constant increase of quartz  
mining in this State, and the recent ex-  
tensive discoveries of valuable ores in  
Utah, Nevada, Montana, etc., have given  
the business of mining an impetus that  
will be felt for years to come; and the  
mining interest generally, instead of  
being on the wane, as many had begun to  
fear was the case, is now increasing in im-  
portance, and bids fair to exceed almost  
every other branch of industry on this  
coast.

Hence the prospector's occupation is  
not yet gone! He still has a vast area of  
undeveloped territory, over which to make  
his nomadic researches; and the early  
Californian, the pioneer of '49, as well  
as many who came to this coast in later  
days, yet possess the miner's characteristic  
trait of a desire to wander from place to  
place, in hopes of "striking it rich" and  
making their fortune suddenly.

Many, now, as formerly, come to Cali-  
fornia under the supposition that all they  
have to do, is to take a pick and shovel, go  
into the mountains with a few provisions  
for a week or so, and return with their  
fortunes. This is as far from being gen-  
erally the case now-a-days, as it was then;  
while the lucky ones are quite as numer-  
ous now as in '49 and '50.

And now, as prospecting is still the order  
of the day, we propose to offer, from week  
to week, a few hints under the above head,  
which will embrace brief allusions to geol-  
ogy, mineralogy and metallurgy, espe-  
cially the latter.

As a newspaper is no place for lengthy  
discussions on any subject, those who de-  
sire a thorough knowledge on any par-  
ticular point, will have recourse to stand-  
ard text books, or works devoted especially  
to the subjects on which full information  
is desired. But to the prospectors and  
miners, especially in remote localities,  
where such hooks are not to be had, even  
a little information is useful, and, it is  
to be hoped, will be acceptable.

#### What Constitutes a Mine?

Among the many things which should  
be understood by the prospector and miner,  
the first, perhaps, is, what constitutes a  
mine? Not many years ago, the answer to  
this query would have been—a pocket  
specimen, perhaps, covered with free gold,  
or showing very evident traces of "eblo-  
ride;" a counterpart, so-called, of many  
others from the same vein, which was said  
to be a marvel of richness by somebody—  
an assayer, perhaps, or an "experienced  
miner." A still shorter time since, it was  
a working test—a little larger quantity—  
this time a skin full from La Paz or Mex-  
ico, or a bag full from the interior, hur-  
ried through the fire with expeditious  
fluxes—worth more, proportionately, than  
could be realized from the ore, and too  
costly for practical use. It had then  
yielded so much by "working process." The  
recollections of such bags and skins  
on the corners of Montgomery street, and

in front of brokers' offices, are, no doubt,  
familiar to many of our readers, and, per-  
haps, to their cost.

Many of the mines which they repre-  
sented never had any "local habitation,"  
except in the imaginations of the deluded  
buyers; all they required was a name.  
These days are now gone by, never to re-  
turn. The capitaliste are no longer to be  
caught with chaff; experienced metallurg-  
ists and mining engineers are too plenty  
for that.

In order to answer the above question  
properly, we should take into considera-  
tion the general classification of mineral  
deposits, and as Mr. Raymond's last report  
contains a chapter on that subject, we can  
perhaps do no better than to reproduce it  
here, especially since the meagreness of  
the appropriation for preparing and pub-  
lishing the report was such as to afford  
very little for printing purposes, whereby  
the book is somewhat scarce. Mr. Ray-  
mond says:

"Mineral deposits," are classified ac-  
cording to their form, position and proba-  
ble origin. The first general distinction  
is made between exposed or superficial,  
and enclosed or subterranean deposits.  
Superficial deposits comprise deposits of  
debris (alluvial or drift deposits formed of  
the accumulated fragments of older rocks,  
such as gold and tin placers, gravel and  
cement mines, etc.) and surface deposits  
*in situ* (such as bog-iron ores, peat more,  
salt, soda, and saltpetre beds and the coast  
deposits of amber). Occasionally a de-  
posit originally enclosed is exposed by  
erosion of the overlying rocks, as, for in-  
stance, the vein of the Red Mountain Co.  
at Silver Peak, Nevada, which is a fissure  
vein from which the hanging wall forming  
the side of the mountain has been almost  
entirely carried away by disintegration and  
aqueous action.

As this scarcely justifies us in calling  
such a deposit a superficial one, so, on the  
other hand, a few feet of overlying soil  
does not convert a superficial deposit into  
an enclosed one. The distinction, like  
others to be hereafter mentioned, is broad  
and convenient, but not minutely accurate.  
Enclosed, or subterranean, deposits comprise  
three great classes, distinguished according  
to their form, as tabular or sheet deposits,  
mass deposits, and irregular segregatione  
or aggregations. I must repeat that these  
distinctions are not sharply drawn, and at  
all times to be recognized in practice.  
Under sheet deposits are ranked such as  
possess two predominant dimensions, while  
the third called the thickness, is compara-  
tively small, so that we may speak of them  
as having a general plane or sheet. It is  
also understood that the surfaces bounding  
such a deposit in two sides have a general,  
though not mathematically exact, parallel-  
ism; they constitute its walls or its roof  
and floor, according to its position. The  
deposits of this class are divided, according  
to their nature, into lodes or veins and  
beds.

Mass deposits include both large irregu-  
lar masses of valuable minerals and strata  
of rock impregnated with valuable min-  
eral, or so intersected with a network of  
mineral veins that the whole must be ex-  
tracted. The German word *stockwerk*, ap-  
plied to this class, and adopted by some  
American writers, means literally, story,  
or story work, and refers to the manner in  
which masses are exploited in successive  
stories, like those of a building.

Irregular segregations or aggregations  
include nests, chambers, pockets, amyg-  
dules, and small ore bodies of every de-  
scription. They may occur in larger de-  
posits of other classes. Thus the amyg-  
daloid beds of Lake Superior are  
sheet deposits, but their copper is often in  
segregations. Pockets and chambers are  
also common in veins, especially in large  
ones. The ordinary rock formations, worked  
by quarrying, and the springs worked by  
horng, digging wells and pumping are  
not taken into consideration.

### Notes on Contributions to Our Cabinet.

No. 548.—Mr. Virgin of Little Cotton-  
wood, has presented us with a fine speci-  
men of "peacock ore" from the Copperopol-  
is lode, head of Little Cottonwood  
Cañon, U. T. The lode is about nine feet  
wide. It carries from 45 to 68 per cent.  
of copper and from \$32 to \$68 per ton in  
silver. The specimen received is a hand-  
some one.



## Iron Smelting Under Artificial Blast.

In the future mining of the vast interior of this country, it will be frequently advantageous to smelt iron for supplying the local iron foundries of large mining districts, and sometimes for the more economical working of large and lasting mines, which may then have the heavier wearing parts of their machinery substituted when required, to save the heavy costs for transportation. The opening of various iron manufactories on this coast will assist the mining of that metal, and, in fact, several new companies are already projected. The Oregon Iron Works were the first to produce pigs—making good iron.

The accompanying cut from Mr. Phillips's new work, "The Explorers', Miners', and Metallurgists' Companion," represents a section of the most common and convenient furnace for smelting the various available ores.

"A strong, square bed of stone is first laid, of about twenty feet in diameter; the center should be a good fire-rock, and drainage channels should be left beneath, to pass off any moisture.

The furnace is drawn to shape; the total height may be fifty feet; the greatest internal diameter at the bottom of the upper cone, sixteen feet; and the diameter of the underlying square crucible, three feet at the blast-holes.

The properly shaped fire-stone, *F*, should be placed to form the front of the crucible, with the stones for the sides and back as high as the blast-holes, which generally stand about from two feet to two feet six inches from the bottom. The crucible part, *S*, is then reared up as shown, and flared outwards to form the bosh, *c, c*; this is at the same time surrounded by the adjoining shell and full-sized outer wall, which is built of strong material, and brought to a dead level at this particular height to form the bed for the upper cones or double shafts; whilst four channels or doorways are left in its lower part (for front tapping-hole, where the furnace-man is seen with the tapping-har), for the two side blast pipes and the back blast pipe (as shown with its governor at *B*).

The arched gangway, *G*, is made to pass a little more than half round the back of the furnace, to provide room for the blast pipes and the workmen.

Upon this strong, square prism of bed-work the two circular cones, *C*, are built, the one being a few inches larger than the other, so that sand may be placed between, to permit expansion and contraction of the inner cone, and to allow greater facility during repairs.

At the top of this is seen a walled terrace and railway for supplying the furnace, which explains itself at sight. Such furnaces may be worked more conveniently when placed at the foot of a hill, as the road can be made to run at a more convenient level for supplying the furnace.

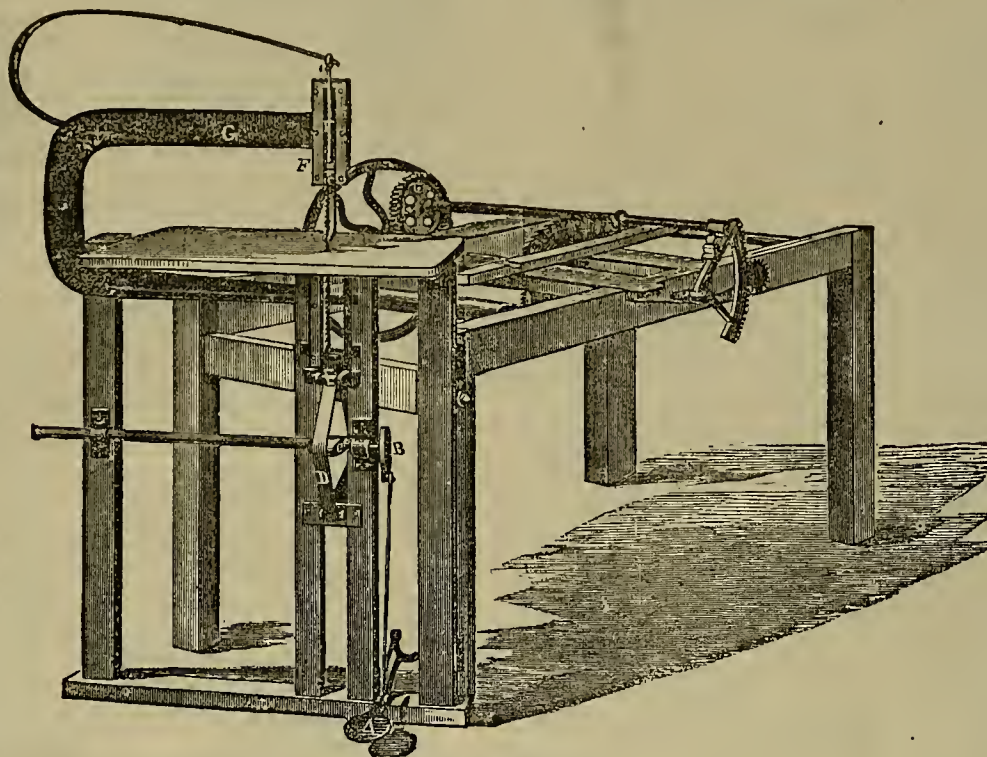
For the last few years, hot blast has been used, which reduces faster and much cheaper, although the iron is not of such good quality. The air is forced through chambers or pipes, where it is warmed to about 600° by the wasted heat from the furnace, or by a separate fire. It is said, that in Scotland alone, two million of tons are saved every year, by this simple means.

There is another very important advantage gained by the use of hot blast, which is that ordinary coal may be used, as well as coke and charcoal. About 6,000 cubic feet of air is forced into one of these furnaces per minute, which is four times the weight of ore; so that the difference of temperature is enormously favorable for ease, speed and economy. As to the quality of iron, it may be more owing to the use of coal that contains sulphur, phosphorus, etc., instead of coke or charcoal, than to the hot or cold blasts."

We have received from the publishers, through Roman & Co., No. 11 Montgomery street, "The Federal Government," by R. H. Gillett.

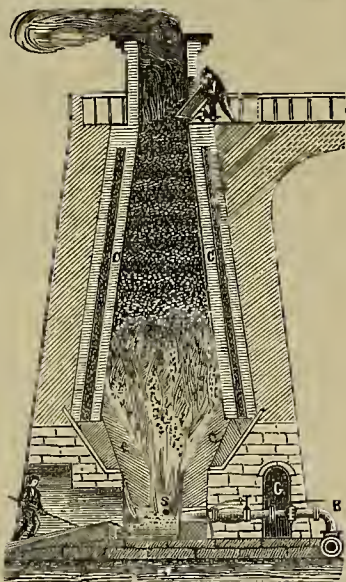
## Talpey's Hand Sawmill.

These mills are a great convenience to carpenters and builders as they can be set up and run in any ordinary shop or easily transported to any building in course of construction. The jig saw will do any kind of scrolling required in ordinary work. It is worked by the foot, as may be seen by the treadle as shown in the cut. A balance-wheel, not shown, may be attached to the shaft operating the jig saw. The circular saw is worked by a crank. Horse



TALPEY'S HAND SAWMILL.

or other motive power may be readily attached, when required, by means of belting on the fly or balance-wheel. The feeder may be raised or lowered at will by means of the gearing shown on the front side of the machine, so as to suit itself to



CUPOLA FURNACE.

the size of the lumher. It feeds itself through the action of a small toothed wheel, which revolves and draws the boards or other material toward the saw.

The object said to be attained, and we believe it has been, by the inventor, is a simple machine with self-feeding device, not difficult to operate or very expensive. It is said to be popular wherever used in the Eastern States, and orders are freely received by the New York manufacturers for the Southern and Western States. For builders in interior towns, where no wood-working shops exist, we should think that this machine would prove indispensable.

It is very simple and durable in construction, and has been recently introduced into our State. One man can operate it easily, doing the work of several hands.

This machine is for sale by W. I. Tustin, and can be seen in operation at his shop on the southeast corner of Market and Beale streets in this city.

## Affairs in Arizona.

Our friends in Arizona have had a great deal of trouble concerning the Indian af-

## Our Mining Interests Abroad.

It may be interesting, not only to those whose interests are mentioned, but to all who care for the reputation and progress of our mines, to know that the letters of our traveling correspondent, Mr. W. H. Murray, are being reproduced by the *London Mining Journal*—the leading mining paper of the world. Our friends furnish us in various ways valuable information, which it is our province to scatter broadcast over the land for the benefit of all whom it may concern, and especially for the furtherance of our mining interests abroad. We are always glad to receive such favors, as it builds up the interests we especially advocate, and thus helps us by helping those whose interests are connected with ours. Our MINING SUMMARY, which costs us much labor, more than any other journal is willing to expend on such subjects, is liberally quoted by all the principal mining journals of our own and foreign countries, increasing the notoriety of our mines throughout the world. Some of our local dailies copy our summary entirely, but it matters little whether they give us credit or not so long as it is for the benefit of those in whose interests we are laboring. We are always pleased to receive any communications on subjects connected with the object of our paper, and heartily encourage our friends in the mining districts to write us, occasionally, and furnish us whatever may be new and of interest in their particular localities. The SCIENTIFIC PRESS is the only journal on the coast which is especially devoted to mining affairs, and we have spared no pains or expense to make its statements on such points full and reliable. The republication of the letters

above mentioned shows that the *Mining Journal* evinces a due appreciation of our efforts in this particular. Miners, write for your paper.

**NEW DISTRICT.**—A mining district has been lately organized, which is situated in the West Diamond range of mountains, 28 miles due north of Eureka, Nevada, and about one mile west of the stage road to Palisade. The general indications and prospects are of the most promising character. The district is eligibly situated for cheap and convenient working, and wood and water are abundant in the surrounding hills. A town site is now being laid out. The district is called after its discover, Mr. McGary.

**POPULAR LECTURES.**—The second course of lectures before the College of Mechanics' Arts will begin on the 9th of December next, and those desiring to attend should make application at once at the Library of the Mechanics' Institute, No. 27 Post street. The first course of lectures, which were reported fully in the SCIENTIFIC PRESS, attracted much attention and were very interesting. We will endeavor to give liberal reports of the forthcoming ones, for the benefit of non-residents, and those who are unable to attend.

**THE RAIN.**—The heavy rains that have been falling for the past few days will, no doubt, furnish the long-looked-for supply of water necessary for the working of the mines and mills of the State. It is a good forerunner of the amount to follow, and we may shortly expect to hear of an increased yield of hulkion from all quarters.

**LUNAR RAINBOWS.**—On Sunday and Monday evenings most perfect and beautiful lunar rainbows were visible to those who happened to be out of doors at the time. As perfect rainbows as these were, are by no means of common occurrence in this section of the country.

The inventor of the metallic baggage check realized \$250,000 out of it.



## DOMESTIC ECONOMY.

### Farmers' Clubs and Farmers' Wives.

The reading of essays by the ladies is one of the exercises which give life and interest to the meetings of the Springfield (Vt.) Farmers' Club. From one of the essays, by Mrs. Daniel Rice, published in the *Vermont Farmer*, we copy the following paragraph:

Did you ever think of the amount of thought requisite to plan three meals a day for three hundred and sixty-five days in succession? To prepare enough and not too much, and for those living at a distance from the village, to remember that the stock of flour, sugar, tea, etc., is replenished in due time?—Do you ever think of the multitude of her cares and duties! She must rise early to prepare breakfast or oversee it.

Perhaps there are children to wash, dress and feed, or to get ready for school with their dinners. There is baking, sweeping, dusting, making beds, lunch for the men, may be—dinner, supper to be made ready at the proper time—the washing, starching, folding and ironing of clothes—the care of milk, including the making of butter and cheese—and the inevitable washing of dishes.

In autumn there is an additional work of pickling, preserving, canning of fruit, drying apples, holling cider, making apple sauce, with the still more unpleasant task which falls to her lot in hutchering-time. Then there is haying, harvesting, sheep-shearing, etc., when more help is needed, bringing an increase of her labors.

Twice a year comes house-cleaning. By the way, of all the foes a house-keeper has to contend with, dirt is the greatest. She may gain a complete victory, and think to repose upon her laurels after her semi-annual engagements—but it is only temporary. The enemy soon returns, and even daily skirmishing does not keep it at bay. There is the mending, too. Sewing machines are great blessings, but they can't set in a patch or darn the stockings.

I don't mention these things by way of complaining of woman's lot in general, or asking for her any rights which she does not possess. I don't know as there is any remedy in the present state of the world. It seems to be one of the evils of life, which must be borne as we bear other ills—but what I do ask is a due appreciation of the important part that woman acts, and a concession that her labors, mental and physical, are as great, all things considered, as those of the other sex. Women are not so childish that a little sympathy now and then, or acknowledgment of their efforts and sacrifices, make them imagine their case worse than it is. I tell you, men and husbands, "it doeth good like a medicine," and many a poor, crushed, broken-down wife and mother is dying for want of it.

**BUCKWHEAT CAKES** make an excellent dish for breakfast on a cold morning. The chemical constituents of this grain are such as to afford more animal heat than any other cereal. To make them nice, the following is perhaps the best receipt which can be given: Have ready two cups; put one teaspoonful of tartaric acid in one cup, one teaspoonful of soda in the other cup; add to each about two tablespoonfuls of cold water; stir it well. Make one quart of huckwheat meal into a thick batter, with moderately warm water; add the contents of one of the cups; stir it well, then pour in the contents of the other cup; stir that well also; add to the whole one tablespoonful of melted butter, and bake on a griddle nicely cleaned and greased with good lard. The batter is ready for use as soon as mixed.

Many people think that three parts of huckwheat and one part of the best heavy oats make much better flour for cakes than huckwheat alone. The oats make the cakes light and spongy, and easy of digestion.

**KEEPING FISH FRESH WITH SUGAR.**—A method adopted in Portugal for preserving and keeping fish fresh, consists in first removing the viscera, then sprinkling sugar over the interior, and keeping the fish in a horizontal position, so that the sugar may penetrate to the greatest possible extent. It is said that fish prepared in this way can be kept completely fresh for a long time—the savor being as perfect as if recently caught. Salmon thus treated before salting and smoking, possess a much more agreeable taste. A tablespoonful of sugar is said to be sufficient for a five-pound fish.

**DRIED apples**, when they have been made of good fruit and carefully prepared, are very nice, really much richer, when gently stewed till perfectly tender, than the fresh fruit. Down in the country of peaches, I have seen them greatly preferred to dried peaches, though made of apples quite inferior to our best. They make good puddings, with sago and tapioca, as well as with bread, lemon and Zante currants.

For stewed sauce, a fine variety can be obtained by putting with them quinces, green grapes and rhubarb, either canned or fresh, and lemon pulp; and some use prunes, raisins and other fruits, both domestic and foreign. Sweet dried apples, usually so hard to dispose of, go off briskly when stewed with cranberries, rhubarb and other sour articles, when nice dried apples can be had.

We hope some of our readers who have been accustomed, often, to go without any fruit at their meals, because they despise "dried apples," will carefully try some of these recipes.

**KEEPING TIN WARE BRIGHT.**—It is a very good plan every washing day, before the hot suds are thrown out, to gather up the tin ware that is in daily use and wash it well with a woolen cloth in the tub or hoiler. The brightness thus given to it is nicer than from scouring; besides, the ware is not worn out, and the seams, about the handles and spouts can be made very clean. With careful usage, tin and britannia ware need not wear out or fall into disuse, hardly in one's life time. All such ware should be made dry about the kitchen stove before it is put away.

Iron, or sheet iron ware, should be kept in good, presentable condition by stove blacking. There is no need of gray or dingy pots and tea kettles when they are so easily kept neat and in good order.

The tin wash hoiler should always be washed and wiped and dried before putting away.—*Rural New Yorker*.

**THE USE OF GLYCERINE IN CANNING.**—We find the following in an exchange:—"Cans in which corn has been placed, sometimes burst in consequence of the fermentation of the contents. The use of pure glycerine will prevent this fermentation. It has only a faint, sweetish taste, not perceptible at all mixed in small quantities with other substances, and is not unhealthy, like many other anti-fermenting ingredients."

Corn which has been properly canned is no more likely to ferment than any other fruit, but the use of glycerine as a preventive to fermentation is new to us; although we are well aware that the glycerine itself will undergo no change. How much glycerine should be used to prevent fermentation, and how far may we depend on that substance. We should be pleased to have the experience of any one who has or may hereafter try it.

**BROILED LIVER.**—Liver can be prepared for the table in an excellent manner by broiling; many prefer it to frying. Broil about ten minutes, with a few slices of salt pork, then season with pepper and salt, and cut up into small strips with the pork; stew a few minutes with a little water and flour sufficient to thicken the gravy. Cut in thin slices for broiling or frying, and if tough soak it in cold salt and water for about a quarter of an hour previous to cooking it. When broiled it is nice minced fine and seasoned with salt, pepper and butter.

**A TENDER GOOSE OR DUCK** may be determined by raising the wing; if the skin tears easily the fowl is tender. If you can easily insert the head of a pin into the flesh of a goose or duck, it is tender and young. The strength of the joints of the legs and the coarseness of the skin is generally a good guide in buying a goose or duck. Such a test is more less applicable to all other fowls.

**REMOVING GREASE SPOTS.**—In removing grease spots from fabrics by means of benzine and petroleum, it often happens that a colored or stained outline of the portion moistened is left. This can be prevented by the application of a layer of gypsum, extending a little beyond the moistened region. When dry, the powder is to be shaken or brushed off, when no traces of the spot will remain.

**AUSTRALIAN COOKED MEATS** are sold in London at from 2½ to 3 cents—American currency—per lb. in cans, comprising boiled and stewed beef and mutton, and corned and spiced beef. It is pronounced rich, succulent and superior to any English meat, besides being cheaper.

### Mechanical Hints.

**TO BLEACH SHELLAC.**—Dissolve in an iron kettle one part of pearl ash in eight parts of water; add one part of pulverized shellac or seed lac, and heat the whole to ebullition. When the lac is dissolved, cool the solution and impregnate it with "chlorine" till the lac is all precipitated. This precipitate is white, but the color is deepened by washing and consolidation. Dissolve in alcohol. Lac bleached by this process yields a varnish as clear as copal.

**LINSEED OIL.**—Linseed oil is made from the seed of the flax plant (formerly called lint-seed,) by grinding them in a mill, and pressing the powder by hydraulic or other power. When first pressed it is of a golden yellow color, but soon collects impurities from the air, and turns brown. The impurities can be washed out by stirring water into it thoroughly, and leaving the water to settle. It contains no stearine, and hence does not congeal at low temperatures. Its chief use is in decorative and preservative painting. Being mixed with the powdered colors, and spread on wood, stone or iron with a brush, it soon dries and hardens into a coating which acts as cement, varnish, and shield from weather. To quicken its drying, it is boiled before using. It is sometimes used in medicine as a laxative, and for this purpose is made from the raw seed without roasting. It is quite an important article of commerce.

**PROTECTING IRON.**—Prof. F. Grace Calvert, of England, has discovered that the carbonates of potash and soda possess the same property of protecting iron and steel from rust as do those alkalis in a caustic state. If an iron blade is half immersed in a solution of either of the above named carbonates, it exerts so protective an action that that portion of the iron which is exposed to the influence of the damp atmospheric air does not oxidize, even after a period of two years. Similar results have been obtained with sea water, to which have been added the carbonate of potash and soda. The applications of this fact are numerous and important.

### The Value of Reading.

No matter how obscure the position in life of an individual, if he can read, he may at will put himself in the best society the world has ever seen. He may sit down with the good and great men of antiquity. He may converse with Franklin and Washington; with all the writers in prose and poetry. He may learn how to live, how to avoid the errors of his predecessors, and to secure blessings, present and future, to himself. He may reside in a desert far away from the habitations of man; in solitude, where no human eye looks upon him with affection or interest; where no human voice cheers him with the animating tones; if he has books to read, he need never be alone. He may choose his company and the subject of conversation, and thus become contented and happy, intelligent, wise and good. He thus elevates his rank in the world, and becomes independent in the best sense of the term. Reading, then, stands among the first in importance of the departments of school education.

**EARN WHAT YOU SPEND.**—Three-fourths of the difficulties and miseries of men come from the fact that most want wealth without earning it, fame without deserving it, popularity without temperance, respect without virtue, and happiness without holiness. The man who wants the best things, and is willing to pay just what they are worth, by honest effort and hard self-denial, will have no difficulty in getting what he wants at last. It is the men who want goods on credit that are snubbed and disappointed and overwhelmed in the end. Happiness cannot be bought by the hittle, nor caught up by the excursion train, nor put on with any robe or jewels, nor eaten at any feast. It does not exist in any exhilaration, excitement or ownership, but comes from the use of the faculties of the body and mind.

**CLEANSING THE HAIR.**—The best substance with which to cleanse the hair is a tablespoonful or two of common spirits of ammonia in a basin of water. The scalp and hair should be thoroughly washed and rinsed and wiped dry. A little glycerine dissolved in alcohol may then be advantageously applied; all other oils will become stale, and are unfit for such use. Barbers commonly use carbonate of potash in the water they employ for shampooing; but spirits of ammonia is better.

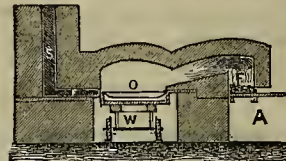
**CHEERFULNESS** is a Christian duty incumbent on all.

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The Best Methods for Reducing the Minerals and Metals to a Marketable Condition, by Roasting, Milling, Chlorinizing, Smelting, and by Chemical Treatment.  
The Continually Recurring, Unnecessary Errors, in Mining and Metallurgy.

PRICE, bound in cloth, \$10 (in coin or its equivalent). In leather, \$12. Postage, 50 cents extra. Address all orders (wholesale or retail) to DEWEY & CO., Scientific Press, 333 Montgomery street, San Francisco.

### LUBRICATING OIL,

#### THE BEST IN THE WORLD!

The attention of the public is called to GRUBER'S NEW PATENT LUBRICATING OIL. For running Machinery of all kinds it has no equal. It will not gum, and runs perfectly smooth, cool and clean. This OIL offers special inducements to Farmers, Livery Stable Keepers, etc.

#### It will be found far Superior

To any other Oil or Grease now in use, for Carriages, Wagons, and all kinds of Farming Machinery.

Mill-men, Printers, and all others having occasion to use a Lubricator, will find a decided advantage in using this Oil—one gallon being equal to two of the best Oil in the market.

#### Perfect Satisfaction Guaranteed OR MONEY REFUNDED.

Orders per Mail or Express will receive prompt attention.

Office and Salesroom—  
**GRUBER LUBRICATING OIL CO.,**  
Corner Drumm and Market streets, . . . SAN FRANCISCO.  
no 25-3m-lp-sa

### Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, CATYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction and not likely to get out of order, and very durable.

#### It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), \$1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer, D. N. PHELPS, al-ly-awhp San Leandro, Alameda County, Cal.

### OCCIDENTAL Insurance Company OF SAN FRANCISCO.

ash Capital, . . . . . \$300,000

GOLD COIN

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.  
B. ROTHSCHILD, Secretary. 2017



## Business Cards.

**E. J. FRASER, M. D.,**  
SURGEON,  
No. 102 Stockton Street, San Francisco, Cal.

**JOHN ROAOH, Optician,**  
Has removed from 522 Montgomery street to  
510 Washington street,  
East of Montgomery.  
Surveying Instruments made, repaired and adjusted  
22v17-3m

**Farmers and Mechanics**  
**BANK OF SAVINGS,**  
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.  
**H. DUTTON, President.**  
**GEO. M. CONDEE Cashier.** 19-16-3m

**BARTLING & KIMBALL,**  
**BOOK BINDERS,**  
Paper Rulers and Blank Book Manufacturers.  
505 Clay street, (southwest cor. Sansome),  
15v12-3m SAN FRANCISCO.

**CO-OPERATIVE UNION**  
**Grocery and Provision Store**  
Removed to 722 Market street, bet. Kearny and Dupont  
SAN FRANCISCO.  
apl-1f

**SAN FRANCISCO**  
**CORRAGE COMPANY.**

Manila Ropes of all sizes. Also, Bale Rope and Whale  
Line constantly on hand. Mining Ropes of any size  
and length manufactured to order.  
**TUBBS & CO., Agents,**  
611 and 613 Front street.

**SAN FRANCISCO MILL.**  
**HOBBS, GILMORE & CO.,**  
Manufacturers of Boxes,  
Market Street, bet. Beale and Main.  
For sale—Mahogany, Spanish Cedar, and other Woods.

**JOSEPH GILLOTT'S**  
**STEEL PENS.**  
Sold by all Dealers throughout the World.

**J. F. PAGES,**  
**SEAL ENGRAVER,**  
**AND LETTER CUTTER.**  
Brass and Steel Stamps and Dies, 608 Sacramento street,  
San Francisco. Orders by express promptly attended to.

**N. P. LANGLAND,**  
Stair Builder, Wood Turner, and  
**SCROLL SAWYER.**  
No. 485 Brannan Street,.....SAN FRANCISCO.  
And No. 9 Q St., bet. First and Second,  
21v23-4f SACRAMENTO.

**L. SCHUMANN,**  
**PIONEER**  
**Meerscham Pipe Manufacturer,**  
No. 341 KEARNY STREET,  
Between Bush and Pine streets, San Francisco.

The first and only Manufacture on the Pacific Coast.  
MEERSCHAUM MOUNTED WITH SILVER. Meerscham  
Pipes Bored and Repaired. Amber Mouth-pieces Fitted.

**The Merchants' Exchange Bank**  
**OF SAN FRANCISCO.**  
Capital, One Million Dollars.

**LEVI STEVENS,.....President.**  
**R. N. VAN BRUNT,.....Cashier.**

**BANKING HOUSE,**  
**o. 415 CALIFORNIA STREET.**  
25v20-9y

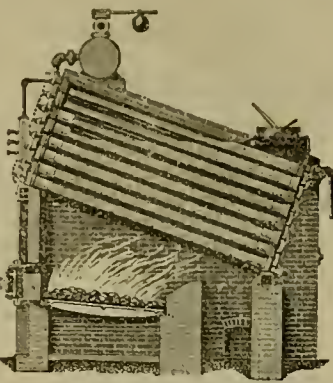
**INTERNATIONAL HOTEL,**  
San Francisco, Cal.

This Favorite House is located on Jackson street, a  
few doors west from Montgomery; offers the greatest in-  
ducements for Families. The International Coach will  
be at each Car Depot and Steamboat, plainly marked In-  
ternational Hotel, to convey passengers to the Hotel  
FREE, and to any part of the city at reasonable rates.  
**F. E. WEYGANT & H. C. PARTRIDGE,**  
24v22-3m Proprietors.

**H. M. BALCH,**  
432 Kearny St., S. E. corner of California st. (up stairs),  
SAN FRANCISCO.  
**Repairs and Tunes**  
ALL KINDS OF  
**MUSICAL INSTRUMENTS,**  
Either Brass, Reed or String.

Special attention given to PIANOS,  
ORGAN, or MELODEONS.  
Mr. B is a practical workman of twenty-  
five years experience, and employs none  
but experienced workmen.  
ORDERS from the country attended promptly.  
5v23-3msa

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**OVER 300 IN USE.**  
**BEST IN THE MARKET.**

Engines, Pumps, Etc., Manufactured and  
on Hand.

For pamphlets and testimonials address  
**ROOT ENGINE CO.,**  
Twenty-eighth Street, corner Second Avenue,  
20v22-cow-26f NEW YORK.

**RISK OF**  
**BOILER EXPLOSION EASILY AVOIDED**

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**EDSON'S**

**Steam Recording Gauges,**

which prompt a constant attention to duty, and are so  
secured by combination locks that they cannot be tam-  
pered with. These are the only gauges that afford a

**CONTINUOUS RECORD**

of the fluctuations of steam pressure, and are therefore  
indispensable to all steam users, as well as absolutely  
necessary for the safety of the traveling public. The  
pressure is recorded on a movable chart. They are  
adopted by the U. S. Government, and required to be  
used on all steam vessels.

**MADE SOLELY BY**  
**The Recording Steam Gauge Co. of N. Y.**  
91 LIBERTY STREET, NEW YORK.

Manufacturers also of Superior Plain Indicating and  
Excessive Recording Gauges, particularly adapted for  
Locomotives, 10v23-4f



**RUGS PATENT**  
**MONITOR MOLDING MACHINE,**

**MADE BY**  
**R. BALL & CO., Worcester, Mass.,**

Manufacturers of the latest Improved Wood-working  
Machinery for Planing Mills, Car Shops, Agricultural  
Implement, Furniture, Sash, Blind, and Door Fac-  
tories, etc., etc. Send for Illustrated Catalogue and Price  
List.  
**RICHARD BALL** **E. P. HALSTEAD.**  
m4-cowly

**SELF-OILERS.**  
**WATERS' SELF-OILERS.**

PATENTED October 21, 1862;  
July 6, 1867; July 23 and Sept.  
22, 1868, and June 20, 1869.  
Glass reservoir, with white  
metal coupling cast on.  
Substantial brass stem, with  
graduating plug-V slot on  
one side, as shown in magni-  
fied cut—in the top.  
The best and cheapest  
OILER in the market; perfect  
lubrication on loose pulleys and all kinds of bearings.  
Any kind of Oil in any kind of weather. Price, \$4.50  
per dozen. Liberal discount to agents and to the trade.

**WATERS & CO.,**  
nol8-3m 164 Elm st, near Fourth, Cincinnati, Ohio.

**Phoenixville Bridge Works**  
**OF PENNSYLVANIA.**

**CLARKE, REEVES & CO.,**  
**ENGINEERS AND BUILDERS.**  
New Bridges, Viaducts, Roofs, Etc.

Would respectfully call the attention of the officers of  
Railway Companies, and Engineers, having charge of  
New Bridge Constructions, to their new

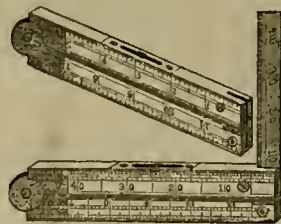
**Album of Designs,**

showing various styles of New Railroad Bridges, Via-  
ducts, etc., which they have either constructed or  
are prepared to construct. A copy will be mailed on ap-  
plication to our address, No. 410 Walnut Street, Phila-  
delphia, ap8-ly

## STEPHENS &amp; CO.,

MANUFACTURERS OF

**U. S. STANDARD BOXWOOD AND**  
**IVORY RULES.**



ALSO EXCLUSIVE MANUFACTURERS OF

**L. C. Stephens' Patent Combination Rule.**

This cut represents the COMBINATION RULE, which  
comprises a Foot Rule, Spirit Level, Try Square, Bevel,  
Plumb, Slope Level, Etc.  
It is made of the very best quality of Turkey Boxwood,  
heavily bound with brass, and is graduated with mathe-  
matical accuracy.

The Square is adjustable, and can be tested and made  
perfectly true by the aid of a small screw-driver, but  
this is seldom required.  
In its application as a Slope Level it is especially  
adapted for Miners' use, as it shows the pitch to the  
foot, and DEGREE OF INCLINATION at once. It is six  
inches long when folded, by one and three-eighths wide,  
and three-eighths inches thick, the cut being just one-  
fourth size.

By the use of one of these, a builder, mason, car-  
penter, or other workman, can always have in his pocket  
the most valuable of his apparatus used in construction,  
combined in a portable, useful and cheap form. "Scientific  
American."

Price by mail, prepaid, \$4. For agents' terms, address  
**STEPHENS & CO.,**  
Riverton, Conn.  
10-v23-3m

To Advertisers.—All persons who contemplate  
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**GEO. P. ROWELL & Co.**

for a Circular, or inclose 25 cents for their One Hun-  
dred Page Pamphlet, containing Lists of 3,000  
Newspapers and estimates, showing the cost of adver-  
tising, also many useful hints to advertisers, and some  
account of the experiences of men who are known as  
Successful Advertisers. This firm are proprietors  
of the American Newspaper Advertising Agency,

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and are possessed of unequalled facilities for securing  
the insertion of advertisements in all Newspapers and  
Periodicals at lowest rates. nol8-3f

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**NEW IMPROVED FAMILY**

**KNITTING MACHINE,**

**\$1,000 TO \$5,000** A YEAR, AGENTS  
any section of the country, selling Dana Bickford's new  
and improved FAMILY KNITTER. This Machine is  
guaranteed (in its present completeness) to meet every  
want of the household for either domestic or fancy work.  
Price \$25. Send for circular and illustrated book.  
Address **DANA BICKFORD,**  
Vice-President and General Agent, 689 Broadway, N. Y.

First Premiums awarded by American Institute, N. Y.

**MICROSCOPES.**

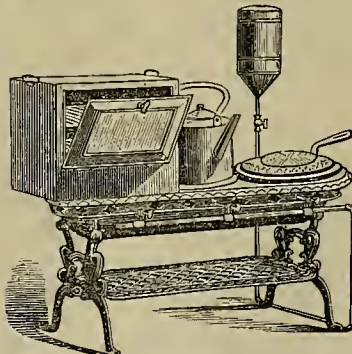
Illustrated Price List sent free.

Magic Lanterns and Stereopticons.

Catalogue, priced and illustrated, sent free.

**McALLISTER, Optician, 49 Nassau street, New York**  
3v23-1y

**THE IMPROVED**  
**AMERICAN VAPOR STOVE.**



No Wood, Coal, Smoke, Ashes, Stovepipe nor Chim-  
neys, and Perfectly Safe, Economy and Convenience  
combined.

**WILLIAM FRIEL, Manufacturer,**

No. 69 and 71 Fourth street, S. F.

All kinds of Lamps altered to burn Patent Oil with  
or without chimneys. Oasoline and Patent Oils for  
Stoves and Lamps for sale. County Rights for sale.  
10v23-3m

**STEINWAY & SONS'**  
**Patent Agraffe Pianos,**  
**GRAND, SQUARE AND UPRIGHT.**

Pianos to Let.

**A. HEYMAN,**

I street, between Sixth and Seventh,  
Opposite old Capitol, SACRAMENTO.

## CENTRAL PACIFIC RAILROAD.

OVERLAND TRAINS.

Express Daily, via Oakland.	Express Daily, via Vallejo.	Nov. 26, 1871.	Express Daily, via Vallejo.	Express Daily, via Oakland.
LEAVE	LEAVE		ARRIVE	ARRIVE
7:00 A.M.	8:30 A.M.	San Francisco	7:30 P.M.	8:30 P.M.
7:25 A.M.	8:55 A.M.	Oakland	8:00 P.M.	8:30 P.M.
7:55 A.M.	9:25 A.M.	San Jose	8:30 P.M.	8:30 P.M.
8:30 A.M.	9:55 A.M.	Niles	9:00 P.M.	9:00 P.M.
11:30 A.M.	12:30 P.M.	Stockton	9:30 P.M.	9:30 P.M.
	10:30 A.M.	Vallejo	5:30 P.M.	5:30 P.M.
	12:30 P.M.	Davis	3:10 P.M.	3:10 P.M.
1:15 P.M.	2:00 P.M.	Sacramento	2:30 P.M.	2:30 P.M.
ARRIVE	5:15 P.M.	Colfax	10:20 P.M.	10:20 P.M.
12:45 A.M.	1:30 A.M.	Reno	2:10 A.M.	2:10 A.M.
3:00 A.M.	3:45 A.M.	Winnemucca	4:15 P.M.	4:15 P.M.
12:00 M.	1:15 P.M.	Battle Mountain	1:25 P.M.	1:25 P.M.
4:40 P.M.	5:15 P.M.	Elko	8:45 A.M.	8:45 A.M.
6:20 A.M.	6:50 A.M.	Ogden	5:20 P.M.	5:20 P.M.
ARRIVE	ARRIVE		LEAVE	LEAVE

San Francisco and San Jose.	San Francisco and Stockton and Modesto.
LEAVE	LEAVE
3:00 P.M.	San Francisco
4:40 P.M.	Niles
5:30 P.M.	San Jose
ARRIVE	ARRIVE
ARRIVE	ARRIVE

San Francisco, Stockton and Modesto.	Sacramento, Marysville and Tehama.
LEAVE	LEAVE
4:00 P.M.	San Francisco
8:05 P.M.	Stockton
9:10 P.M.	Modesto
8:30 P.M.	11:30 A.M.
ARRIVE	ARRIVE
ARRIVE	ARRIVE

Oakland Branch.—Leave San Francisco.	Alameda Branch.—Leave San Francisco.
8:10, 9:2, 10:10 and 11:20 a. m.	12:10, 1:50, 3:30, 4:00, 5:15, 6:30, 8:00
8:20 and 11:30 p. m.	(3:20, 11:20 and 3:00 to Oakland only)
LEAVE STOCKTON, 7:50, 8:40, 9:50, 10:00 and 11:00 a. m.	1:30, 2:40, 3:50, 4:40 and 10:00 p. m.
LEAVE OAKLAND, 5:40, 6:50, 8:00, 9:10, 10:00, and 11:10 a. m.	12:00, 1:40, 2:50, 3:50, 5:05, 6:20, 7:50 and 10:20 p. m.

Alameda Branch.—Leave San Francisco.	Haywards Branch.—Leave San Francisco.
7:20, 9:00, 11:15 a. m.	1:30, 4:00, 5:30 and 7:00 p. m.
5:30 and 7:30 p. m.	5:30 and 7:30 p. m.
LEAVE HAYWARDS, 4:30, 5:00 and 10:45 a. m.	and 3:30 p. m.
LEAVE FRUIT VALE, 5:25, 7:35, 9:00 and 11:20 a. m.	1:30, 4:05 and 5:30 p. m.

## CALIFORNIA PACIFIC RAILROAD.

Leave San Fran.	Leave Vallejo.	Arrive at Colistoga.	Arrive Marysville.	Arrive Sacramento.
8:30 A.M.	10:30 A.M.	1:30 P.M.	4:00 P.M.	1:30 P.M.
8:40 P.M.	10:40 P.M.	8:15 P.M.	1:00 P.M.	8:40 P.M.
10:30 A.M.	12:30 P.M.	1:00 P.M.	5:15 P.M.	1:00 P.M.
LEAVE	LEAVE	LEAVE	LEAVE	LEAVE
8:30 A.M.	10:30 A.M.	1:30 P.M.	4:00 P.M.	1:30 P.M.
8:40 P.M.	10:40 P.M.	8:15 P.M.	1:00 P.M.	8:40 P.M.
10:30 A.M.	12:30 P.M.	1:00 P.M.	5:15 P.M.	1:00 P.M.

## Sacramento, Davis and Marysville.

Leave S. Fran.	Leave Sacramento.	Leave Davis.	Arrive Woodl.	Arrive Maryville.
8:30 A.M.	11:45 A.M.	12:50 P.M.	1:20 P.M.	4:00 P.M.
8:40 P.M.	11:55 P.M.	8:05 P.M.	8:35 P.M.	10:35 P.M.
8:30 A.M.	11:40 P.M.	7:30 P.M.	5:35 P.M.	5:15 P.M.
LEAVE	LEAVE	LEAVE	LEAVE	LEAVE
8:30 A.M.	11:45 A.M.	12:50 P.M.	1:20 P.M.	4:00 P.M.
8:40 P.M.	11:55 P.M.	8:05 P.M.	8:35 P.M.	10:35 P.M.
8:30 A.M.	11:40 P.M.	7:30 P.M.	5:35 P.M.	5:15 P.M.

## SAN FRANCISCO &amp; N. PACIFIC R. R.

Leave	Arrive	Leave	Arrive
2:00 P.M.	San Francisco	11:00 A.M.	Arrive
4:35 P.M.	Donahue	8:45 A.M.	Arrive
5:00 P.M.	Petaluma	9:20 A.M.	Arrive
6:00 P.M.	Santa Rosa	7:30 A.M.	Arrive
6:45 P.M.	Headsturg	6:45 A.M.	Arrive

## CAL. P. R. R. CO'S STEAMERS.

Leave.	Leave.		Arrive.	Arrive.
*4.00 P M	*4.00 P M	....San Francisco. .	*10.00 P M	*8.00 P M
6.00 P M	6.00 P M	....Benicia.....	8.00 P M	6.00 P M
	2.00 A M	....Stockton.....	2.00 P M	....
2.00 A M	....	....Sacramento .....		12.00 M.
Arrive.	Arrive		Leave.	Leave.



## A New Reclamation Enterprise.

It is well known to all who are conversant with the natural resources of California, that in the valleys and river bottoms there are hundreds of thousands of acres of valuable land subject to overflow, which, if redeemed, would be the most fertile soil in the State. To accomplish this result requires a large outlay of capital, in the building of levees, dykes and other necessary improvements. In Holland, miles of territory are protected from the encroachments of the sea by artificial means, and are drained by a system of dykes, which extend like a network all over the country; and the soil, thus redeemed, is invariably more prolific than any other.

We learn that J. Ross Browne, while in London some months ago, presented this subject of reclaiming swamp and overflowed lands in California, to a number of English gentlemen who are largely interested in such enterprises, and a "Syndicate" was formed for the purpose of engaging capitalists to furnish the requisite means to carry through such an undertaking in this State. A few days since a party consisting of Hon. E. B. Eastwick, M. P., J. F. Dalrymple Hay, Esq., Engineer, etc., and W. S. Campbell, arrived here for the purpose of making an examination of the resources and value of overflowed lands. These gentlemen have made a thorough investigation of lands in Sacramento and San Joaquin valleys and in the vicinity of San Francisco Bay. The examination is reported as very satisfactory, and the result will probably be the introduction of a large amount of English capital for this purpose. All of the party except Mr. Campbell will return to England at once, to make their report. Mr. Campbell, who was lately American Consul in Holland, and a resident of that country for eighteen years, is thoroughly familiar with the system of dykes, which guard its lands from the sea, and he brings to this enterprise valuable experience, gained from years of personal observation.

We look upon this undertaking as one of the most important ever commenced in California, profitable alike to the people of the State at large and the capitalists who invest in it. The great need for the development of our resources is money, which cannot be obtained here at low rates of interest, and a fine field is offered for the outlay of foreign capital, which will meet with a return many fold greater than could be derived from an investment in the old and settled countries of Europe. We hope to see this enterprise become a success to its full extent, as it will contribute to the prosperity of the State, and be the means of securing the further introduction of foreign capital, which is always awaiting investment, where safe and permanent profits are assured.

We know that all well directed capital invested in our lands will eventually extend its influence towards the development of our rich mines.

PUBLIC SPEAKERS AND SINGERS WILL FIND "BROWN'S BRONCHIAL TROCHES" beneficial in clearing the voice before speaking or singing, and relieving the throat after any unusual exertion of the vocal organs, having a peculiar adaption to affections which disturb the organs of speech. For coughs and colds the TROCHES are effectual.

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught.

Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TAIT, Oakland, Master Fifth Class. s9b9tft

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 25v12mbp

## San Francisco Retail Market Rates.

THURSDAY NOON, November 30, 1871.			
MISCELLANEOUS.			
Butter, Cal. fr. lb.	65	75	Second-hand do 67 1/2 @ 70
Pickled, Cal. lb.	45	50	Wheat, 22x36 15 @ 13
Cal. Or. do. lb.	25	30	Potato G. Y. Bags 22 @ 20
Honey, Cal. lb.	25	30	Second-hand do 15 @ 15
Cheese, Cal. lb.	20	25	Deer Skins, Cal. lb. 15 @ 22
Eggs, Cal. doz.	20	25	Sheep skins, Cal. lb. 50 @ 50
Lard, Cal. lb.	18	20	Goat skins, plain 12 1/2 @ 25
Sugar, cr. 1/2 lb. 100	10	10	Sheep skins, each 25 @ 50
Brown, do. 1/2 lb. 10	10	10	Dry Cal. Hides 17 1/2 @ 18
White, do. 1/2 lb. 10	10	10	Wool, raw 15 @ 15
Sugar, Map. lb. 25	25	30	Dry Mex. Hides 16 @ 30
Plums, dried, lb. 15	15	30	Salted do 30 @ 30
Peaches, dried, lb. 15	15	30	Codfish, dry, lb. 10 @ 12 1/2
Wool Sacks, new	15	30	

PRODUCE, ETC.			
Flour, ex. 55 lb. 00	65	25	Beans, ex. 35 00 @ 45 00
Superfine, do. 60 00	67	00	Potatoes, Cal. lb. 1 @ 2
Corn Meal, 100 lb. 30	40	50	Hay, Cal. ton 25 00 @ 28 00
Wheat, ex. 100 lb. 75	80	00	Live Oak Wood 9 00 @ 10 00
Barley, cwt. 1 85	85	20	

FRUITS, VEGETABLES, ETC.			
Pine Apples, 1/2 doz. 50	60	00	Garlics 5 @ 12 1/2
Bananas, Cal. lb. 30	30	00	Green Beans 3 @ 37 1/2
Cal. V. do. lb. 20	20	00	Green Corn do 3 @ 37 1/2
Cranberries, Cal. lb. 75	75	00	Sugar Peas 3 @ 25
Cranberries, Cal. lb. 75	75	00	Cucumbers, doz. 37 1/2 @ 25
Plums, Cal. lb. 75	75	00	Rhubarb, lb. 5 @ 25
Plums, Cherry, 6 @ 25	25	00	Mushrooms, doz. 50 @ 25
Strawberries, lb. 37 1/2 @ 50	50	00	Horseshoe do 50 @ 20
Oranges, Cal. 100, 30 00	30	00	Okra, dried, lb. 50 @ 25
Lemons, Cal. 100, 30 00	30	00	Whitaker's 3 @ 25
Limes, per 100, 1 50 @ 50	50	00	Parsnips, bunch 25 @ 25
Figs, dried, lb. 50	50	00	Parsley 25 @ 25
Asparagus, wh. 50	50	00	Pickles, Cal. 50 @ 25
Artichokes, Cal. 50	50	00	Radishes, bunch 25 @ 25
Brussels sprouts, 20	20	00	Green Peppers, 8 @ 10
Beets, Cal. doz. 20	20	00	Red, do 6 @ 10
Spinach, Cal. doz. 20	20	00	Whitaker's 6 @ 10
Potatoes, sweet, 4 @ 50	50	00	Marrowfat, do. 3 @ 4
Broccoli, Cal. doz. 50	50	00	Hubbard, do. 3 @ 4
Scalope, Cal. doz. 50	50	00	Spinach, Cal. 5 @ 15
Artichokes, doz. 75	75	00	Dry Lima, lb. 6 @ 8
Carrots, Cal. doz. 50	50	00	Spinage, bush 25 @ 50
Celery, Cal. doz. 75	75	00	Salsify, bunch 12 @ 25
Spices, wild, pair 75	75	00	Whitaker's 6 @ 10
Dried Herbs, lb. 25	25	00	New Tomatoes, 5 @ 25
Egg Plant, 12 1/2 @ 50	50	00	

POULTRY, GAME, FISH, MEATS, ETC.			
Chickens, apiece 50	50	00	Beacon, Cal. lb. 18 @ 20
Apricots, Cal. lb. 20	20	00	Sturgeon, lb. 5 @ 15
Ducks, wild, pair 50	50	00	Hams, Cal. lb. 18 @ 20
Tame, do. 1 50 @ 75	75	00	Hams, Cross & c 25 @ 25
Teal, doz. 75	75	00	Choice D. Meats 25 @ 25
Goslings, doz. 75	75	00	La. Big Trout 6 @ 50
Tame, pair 2 50 @ 40	40	00	Johnson's Or. 30 @ 25
From Chicago 75	75	00	Salmon, lb. 30 @ 12
Hens, each 75	75	00	Smoked, new, 10 @ 12
Snipe, Cal. doz. 50	50	00	Pickled, lb. 10 @ 12
English, do. 50	50	00	Rock Cod, lb. 10 @ 12
Venison, lb. 12 1/2 @ 15	15	00	Perch, water, lb. 8 @ 10
Quails, Cal. doz. 75	75	00	Fresh water, lb. 12 1/2 @ 15
Pigeons, doz. 75	75	00	La. Big Trout 6 @ 50
Wild, do. 1 50 @ 20	20	00	Smelts, lb. 10 @ 12 1/2
Hares, each 40	40	00	Herring, fresh, 6 @ 10
Rabbit, tame, 1 00 @ 15	15	00	Tomcod, lb. 25 @ 30
Wild, do. 1 50 @ 20	20	00	Torrapi, Cal. doz. 40 @ 50
Squirrel, pair 25	25	00	Mackerel, p. k. ea 25 @ 30
Beef, tend, lb. 20	20	00	Sea Bass, Cal. lb. 25 @ 30
Beef, rib, lb. 12 1/2 @ 15	15	00	Halibut, lb. 50 @ 50
Pork, rib, etc., lb. 12 1/2 @ 15	15	00	Sturgeon, lb. 4 @ 5
Veal, lb. 15 @ 20	20	00	Salmon, lb. 100 @ 12
Veal, lb. 15 @ 20	20	00	Chesp. Cal. doz. 40 @ 60
Outlet, do. 20	20	00	Turbot, lb. 60 @ 62
Mutton chops, 12 1/2 @ 15	15	00	Soft shell, 37 @ 40
Lamb, lb. 12 1/2 @ 15	15	00	Shrimps, 10 @ 12
Tongues, beef, ea 15	15	00	Prawns, 25 @ 50
Tongues, pig, ea 15	15	00	

\* Per lb. † Per dozen. ‡ Per gallon.

## Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, November 30.			
SOLE LEATHER.—Eastern shipments still keep the market firm and the demand good.			
California Leather, lb. 25	25	00	26 @ 29
Santa Cruz Leather, lb. 25	25	00	26 @ 29
Country Leather, lb. 25	25	00	26 @ 29
French stock comes in more freely, and prices are easier in the skin and calf skins are still scarce and high.			
Jodot, 8 Kil. per doz. 50	50	00	80 @ 80
Jodot, 10 Kil. per doz. 50	50	00	80 @ 80
Jodot, 12 Kil. per doz. 50	50	00	80 @ 80
Jodot, 14 Kil. per doz. 50	50	00	80 @ 80
Jodot, 16 Kil. per doz. 50	50	00	80 @ 80
Jodot, 18 Kil. per doz. 50	50	00	80 @ 80
Jodot, 20 Kil. per doz. 50	50	00	80 @ 80
Jodot, 22 Kil. per doz. 50	50	00	80 @ 80
Jodot, 24 Kil. per doz. 50	50	00	80 @ 80
Jodot, 26 Kil. per doz. 50	50	00	80 @ 80
Jodot, 28 Kil. per doz. 50	50	00	80 @ 80
Jodot, 30 Kil. per doz. 50	50	00	80 @ 80
Jodot, 32 Kil. per doz. 50	50	00	80 @ 80
Jodot, 34 Kil. per doz. 50	50	00	80 @ 80
Jodot, 36 Kil. per doz. 50	50	00	80 @ 80
Jodot, 38 Kil. per doz. 50	50	00	80 @ 80
Jodot, 40 Kil. per doz. 50	50	00	80 @ 80
Jodot, 42 Kil. per doz. 50	50	00	80 @ 80
Jodot, 44 Kil. per doz. 50	50	00	80 @ 80
Jodot, 46 Kil. per doz. 50	50	00	80 @ 80
Jodot, 48 Kil. per doz. 50	50	00	80 @ 80
Jodot, 50 Kil. per doz. 50	50	00	80 @ 80
Jodot, 52 Kil. per doz. 50	50	00	80 @ 80
Jodot, 54 Kil. per doz. 50	50	00	80 @ 80
Jodot, 56 Kil. per doz. 50	50	00	80 @ 80
Jodot, 58 Kil. per doz. 50	50	00	80 @ 80
Jodot, 60 Kil. per doz. 50	50	00	80 @ 80
Jodot, 62 Kil. per doz. 50	50	00	80 @ 80
Jodot, 64 Kil. per doz. 50	50	00	80 @ 80
Jodot, 66 Kil. per doz. 50	50	00	80 @ 80
Jodot, 68 Kil. per doz. 50	50	00	80 @ 80
Jodot, 70 Kil. per doz. 50	50	00	80 @ 80
Jodot, 72 Kil. per doz. 50	50	00	80 @ 80
Jodot, 74 Kil. per doz. 50	50	00	80 @ 80
Jodot, 76 Kil. per doz. 50	50	00	80 @ 80
Jodot, 78 Kil. per doz. 50	50	00	80 @ 80
Jodot, 80 Kil. per doz. 50	50	00	80 @ 80
Jodot, 82 Kil. per doz. 50	50	00	80 @ 80
Jodot, 84 Kil. per doz. 50	50	00	80 @ 80
Jodot, 86 Kil. per doz. 50	50	00	80 @ 80
Jodot, 88 Kil. per doz. 50	50	00	80 @ 80
Jodot, 90 Kil. per doz. 50	50	00	80 @ 80
Jodot, 92 Kil. per doz. 50	50	00	80 @ 80
Jodot, 94 Kil. per doz. 50	50	00	80 @ 80
Jodot, 96 Kil. per doz. 50	50	00	80 @ 80
Jodot, 98 Kil. per doz. 50	50	00	80 @ 80
Jodot, 100 Kil. per doz. 50	50	00	80 @ 80

## San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES			
Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.			
FRIDAY, December 1, 1871.			
Iron.—Duty: Pig, 57 ton; Railroad, 56 1/2 ton; Bar, 1/2 lb. 50; Sheet, 1/2 lb. 50; Pipe, 1/2 lb. 50; Galvanized, 1/2 lb. 50.	57	56 1/2	50
Scotch and English Pig Iron, 57 ton. \$44 00 @ 45 00	44	45	00
White Pig, 57 ton. 40 00 @ 42 00	40	42	00
Refined Bar, bad assortment, lb. 05 @ 06	05	06	00
Refined Bar, good assortment, lb. 05 @ 06	05	06	00
Boiler, No. 1 to 4. 05 @ 06	05	06	00
Plate, No. 5 to 8. 05 @ 06	05	06	00
Sheet, No. 10 to 12. 05 @ 06	05	06	00
Sheet, No. 14 to 20. 05 @ 06	05	06	00
Sheet, No. 24 to 27. 05 @ 06	05	06	00
Horse Shoes. 7 50 @ 8 00	7 50	8 00	00
Nail Rod. 5 00 @ 5 50	5 00	5 50	00
Norway Iron. 7 50 @ 8 00	7 50	8 00	00
Other Irons for Blacksmiths, Miners, etc. 5 @ 6	5	6	00
CORRUGATED.—Duty: Sheathing, 3/4 lb. 10; Fig and Bar, 2 1/2 lb. 10.			
Sheathing, 3/4 lb. 21 @ 26	21	26	00
Sheathing, Yellow. 24 @ 25	24	25	00
Sheathing, Old Yellow. 24 @ 25	24	25	00
Composition Nails. 24 @ 25	24	25	00
Composition Bolts. 24 @ 25	24	25	00
Plates, Charcoal, 1/2 lb. box. 12 00 @ 10 00	12	10	00
Plates, 1/2 lb. Charcoal. 10 00 @ 10 00	10	10	00
Roofing Plates. 11 00 @ 11 00	11	11	00
Rail Tin, Slabs, lb. 16 @ 17	16	17	00
SREEL.—English Cast Steel, lb. 16 @ 17	16	17	00
Drill. 16 @ 17	16	17	00
Flat Bar. 16 @ 17	16	17	00
Punch Points. 3 75 @ 3 75	3 75	3 75	00
Russia (for mould boards). 12 1/2 @ 12 1/2	12 1/2	12 1/2	00
QUICKSILVER.—lb. 50 @ 55	50	55	00
Lead.—Pig, lb. 08 1/2 @ 09 1/2	08 1/2	09 1/2	00
Sheet. 08 @ 09	08	09	00
Pipe. 08 @ 09	08	09	00
Bar. 08 @ 09	08	09	00
Zinc Shoes, lb. 08 @ 09	08	09	00
BORAX.—Refined. 25 @ 30	25	30	00
BORAX, crude. 5 @ 30	5	30	00

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 291 Bowery, 157 E. 26th, 477 9th Ave. New York Good work at high prices if desired. 25v12mbp

## Good Cause for Thanksgiving.

Few communities has had greater cause for thanksgiving than have the people of California during the past week; and we doubt not that most hearty and devout thanks went up to the Giver of All Good on Thursday last, for the welcome foretaste of a prosperous season, which the bounteous rains of Sunday, Monday and Tuesday brought to our needful doors. By the delay of the November rains to near the very close of the month, a feeling of doubt and distrust had begun to find its way into the minds of our people, which has now, happily, given place to most cheerful views of the industrial and business prospects of the coming season.

We have now received fully the allotted amount of rain—about four inches—due, at the present time, to secure more than an average crop, and our farmers will lose no time in preparing their ground and getting in the seed. The experience of the past few years is a valuable addition to the stock of knowledge needed by California farmers. They have learned that drouths are an exception to the general value, and even they are not so much to be dreaded as formerly;—for, by proper attention, except in a few localities, fair crops can even then be raised, save in the most extraordinary seasons.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which surpasses every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. f25-1y

N. Seibert's Eureka Lubricators for steam cylinders are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time, in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 125 First street, San Francisco. 8v23-3v

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

**TARRANT'S SELTZER**  
APERIENT

The King of Mineral Springs is the German Seltzer, and Tarrant's Effervescent Seltzer Aperient is its duplicate. Letters attesting its wonderful Tonic Aperient and Anti-Bilious qualities swarm in from every source. The question has been settled whether artificial medicated waters may not be equal to those which burst sparkling from the earth itself. They can, and the Seltzer Aperient, when undoubtedly pure and genuine, proves the fact. Be cautious. Accept none other.

**TARRANT'S SELTZER**  
APERIENT

SOLD BY ALL DRUGGISTS.

**TARRANT'S SELTZER**  
APERIENT

are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETTS being the original inventor and Sole Maker in the United Kingdom.

1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

**CAST STEEL FILES.**

John T. Bunker & Co.'s—We wish to inform Dealers and Iron Workers that we are Agents for these celebrated Files, and are offering superior inducements to introduce them. (22-v23-3m) HOOKER & CO.

**Wanted.**

Situation Wanted by a Practical Engineer, a Mach. mist, capable of keeping Machinery in order. Good references. Address B, B, B, this office. de2-1t

## AUCTION SALE.

We will sell at public Auction, to the highest bidder, for U. S. gold coin, on THURSDAY, December 28th, 1871, at W. A. Holcombe & Co.'s warehouse, the following described goods, to pay storage and advances, unless the charges are previously paid. Sale to commence at 12 M.

Description.	Name.	Charges.
1 case.	R. Carpenter.	\$14 50
1 chest.	No Mark.	17 00
5 cases wine.	W. N. G.	23 00
1 box.	W. N. G.	23 00
4 pkgs furniture.	Smith & Smith.	45 43
1 bundle, 1 bedstead.	Francisco Garcia.	24 00
1 case.	Ah Mow.	18 25
1 pkg name, 1 case.	W. N. G.	23 00
1 barrel.	A. J. D.	28 50
2 pkgs ore.	G. Phelps.	24 00
1 case.	H. Winfield.	26 50
1 keg.	G. Phelps.	24 00
1 case acid, 1 case.	S. D. Field.	31 50
1 marble slab.	Goodwin & Co.	27 25
1 sks quinz, 1 case.	C. Bogan.	31 00
1 velvet.	W. H. Martte.	27 50
1 sign, 2 cot beds.	R. Weidman.	31 00
1 trunk.	Mrs. They.	27 50
2 cases.	R. G. G.	27 50
1 bag.	Mrs. Simpson.	27 50
15 coils wire.	A. S. Haldy.	65 75
1 sulky.	Geo. W. Wells.	41 25
1 case.	Sam Lee.	30 00
1 case, 1 case.	Douglas & Co.	34 00
1 chest.	Marriott Terry.	33 85
1 case.	W. M. Seaby.	30 00
1/2 case, 1 barrel, 1 case.	F. S.	30 00
1 case.	C. W.	29 50
6 pumps, 1 pk handles.	pg Iron, G. M. Ganch.	63 25
1 case.	C. Hanson.	52 50
1 chest, 2 pieces pipe.	B. McGee.	37 00
1 case.	R. W. Wells.	31 00
1/2 case.	Geo. Spect.	31 00
1 box.	Douglas & Co.	34 00
1 case.	S. Oldman.	36 25
1 box.	J. Hanna.	36 60
1 case.	R. W.	30 00
1 coil chain.	J. Moody.	35 50
10 1/2 barrels.	A. M.	66 00
Lot of iron shafting, etc.	J. W. Wall.	37 00
1 stove, 1 boiler, 1 bd. pots, 1st pan.	Dward Ruggles.	39 00
1 case.	C. & W.	29 50
6 cases, 1 trunk, 1 chest.	O. Hensch.	27 00
1 chest.	C. W. Warden.	12 00
1 case.	R. W.	16 00
1 case.	W. Terry.	22 00
1 chest.	Wm. Foy.	12 00
1 chest.	C. W. Warden.	16 00
1 trunk, 1 bd Bedding.	Nrr. Lisle.	18 00
1 case.	No Mark.	12 00
2 pkgs bedstead, 1 bundle.	Mrs. Bowes.	18 00
1 case.	R. W.	16 00
1 barrel.	J. Olas.	31 00
1 case.	No Mark.	63 00



Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

**Altona Gravel Mining Company—Location**  
of works, Grass Valley, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 31st day of October, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 4th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale as public auction, and unless payment shall be made before, will be sold on Tuesday, the 26th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal.  
nov4-5w

**Eagle Quicksilver Mining Company—Location**  
of works, Santa Barbara County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of October, 1871, an assessment of Forty (40) dollars per share was levied upon each and every share of the mines of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Thursday, January 4th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal.  
nov1d

**Mina Rica Mining Company—Location**  
of works, Auburn District, Placer County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 14th day of November, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, room No. 2, 4th California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 18th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
GEO. R. SPINNEY, Secretary.  
Office, Room No. 2, third floor, 4th California street, San Francisco, California  
nov18-5w

**Nevada Land and Mining Company—Location**  
of works, Spruce Mountain, Antelope, Clifton and Johnson and Latham District, Elko County, State of Nevada.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 9) levied on the 12th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Am't.  
Joseph Klopentine, unissued 2000 \$80 00  
And in accordance with law, and an order of the Board of Trustees, made on the 12th day of October, 1871, on many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, Cal., on the 4th day of December, 1871, at the hour of 2 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal.  
nov18-31

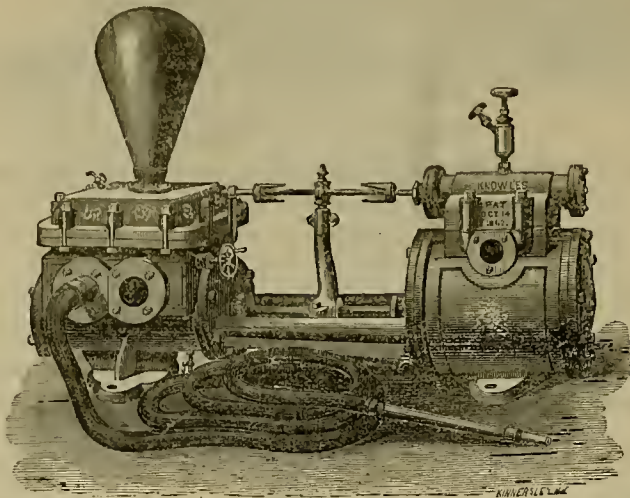
**Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, California.**  
NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 23d day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. shares. Amount.  
Brush, R. G. .... 246 38 \$22 80  
Brush, R. G. .... 288 62 37 20  
Burford, H. C. .... 315 5 3 30  
Baum, Chas. .... 316 100 60 00  
Brush, R. G. Trustee, 329 100 50 00  
Brush, R. G. Trustee, 331 50 30 00  
Curry, John, .... 213 25 15 00  
Kip, Jr., W. J. .... 237 500 300 00  
McCurdy, E. .... 173 23 14 10  
McCurdy, John R. .... 139 100 50 00  
McCurdy, John R. .... 190 12 7 20  
McAlister, C. J. C. .... 339 460 240 00  
Reynolds, W. O. .... 210 19 11 40  
Swain, H. C. .... 245 100 60 00  
Swain, H. C. .... 320 50 30 00  
Swain, H. C. .... 234 50 30 00  
Swain, H. C. .... 318 50 30 00  
Speyer, Richard, .... 309 24 14 70  
Torrance, R. J. .... 293 50 30 00  
And in accordance with law and an order of the Board of Trustees, made on the 23d day of October, 1871, on many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, on the 15th day of December, 1871, at the hour of 1 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
R. G. BRUSH, Secretary.  
Office, 314 California street, San Francisco, California.  
dec2-3w

**Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.**  
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 4th day of September, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. of Certificate. No. of Shares. Am't.  
Briggs, Chas. A. .... 15 583 1/2 \$729 17  
Briggs, Edgar, .... 11 60 60 50  
Coughlin, Jerry, .... 20 1750 2187 50  
DeForest, J. .... 7 500 625 00  
DeForest, J. .... 8 500 625 00  
DeForest, J. .... 9 500 625 00  
Emart, Michael, .... 18 1750 2187 50  
Feuseir, Louis, .... 1 750 937 50  
Feuseir, Louis, .... 12 700 875 00  
Flint, Benj., .... 6 1750 2187 50  
Godfrey, Richard, .... 19 2625 3281 25  
Hutchinson, Wm T. .... 17 583 1/2 729 17  
Perkins, J. E. .... 4 1750 2187 50  
Perkins, J. E. Trustee, .... 21 1000 1250 00  
Perkins, J. E. Trustee, .... 22 1000 1250 00  
Perkins, J. E. Trustee, .... 23 1000 1250 00  
Tilden, H. N. .... 6 500 625 00  
Willson, James, .... 13 1750 2187 50  
Willson, James, .... 14 875 1093 75  
And in accordance with law, and an order of the Board of Trustees, made on the 6th day of October, A. D. 1871, on many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 418 California street, San Francisco, Cal., on Friday, the 8th day of December, 1871, at the hour of 2 o'clock p. m. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
J. W. CLARK, Secretary.  
nov14w

KNOWLES' PATENT STEAM PUMP.

Awarded First Premium and Diploma

Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Premium and Diploma at State Fair, and Gold Medal Recommended.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, CAL., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.  
Yours truly,  
A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, OREGON, April 22, 1871.

Mn. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.  
Yours respectfully,  
G. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.  
Yours very truly,  
C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.

Messrs. KNOWLES & SIBLEY, 92 Liberty street, New York—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.  
Yours very truly  
GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, NEW YORK, June 3, 1871.

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.  
Yours very respectfully,  
WM. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDACQUA, Pa., June 1, 1871.

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which I say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.  
Respectfully yours, etc.,  
EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., HELLERTOWN, Northampton County, Pa., May 26, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given VERY GREAT satisfaction, and that we like them better than any we have ever used.  
Yours very respectfully,  
G. W. WHITAKER, President and Superintendent.

OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyl., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.  
Yours very truly,  
P. SAULT, Superintendent.

OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc.,  
JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand.

24v22-60w

**Pocahontas Gold Mining Company—Location**  
of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 29th day of November, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 16, Hayward's Building, No. 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
L. A. JENYIN, Secretary.  
Office, Room No. 25, Hayward's Building, 419 California street, San Francisco, Cal.  
dec2-5w

**Seaton Mining Company—Location of**  
Works, Drytown Mining District, county of Amador and State of California.

Notice is hereby given that at a meeting of the Trustees of said Company, held on the 27th day of October, 1871, an assessment of \$20 per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 438 California street San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 2d day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the 30th day of December, 1871, to pay the delinquent assessment, together with costs of advertising and expenses of the sale. By order of the Board of Trustees.  
JOEL F. LIGHTNER, Secretary.  
Office, at No. 438 California street, San Francisco, California.  
nov4-4w

**Starlight Gold and Silver Mining Company**  
—Location of works, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of November, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 11th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 2d day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal.  
nov14-4w

**Stockholders' Meeting.—The Annual**  
Meeting of the Stockholders of the Golden Sun Gold Mining Company will be held at the office of the Company, No. 611 Washington street, on Monday, December 11, 1871, at 6:30 p. m. By order of the President.  
A. W. CHAPIN, Secretary.  
San Francisco, Nov. 22, 1871.  
nov25-2w

**Stockholders' Meeting.—The Annual**  
Meeting of the stockholders of the North American Consolidated Mining Company, for the election of Trustees for the ensuing year, and for the transaction of such other business as may lawfully come before it, will be held at the office of the company, Room 5, No. 30 Montgomery street, San Francisco, California, on Monday, the 4th day of December, 1871, at 2 o'clock p. m.  
WM. H. WATSON, Secretary.  
nov18-31

MINING BUREAU

—OF THE—

Pacific Coast.

Sacramento City Office at Vice-Consulate of France. San Francisco Office, 331 Montgomery street (Stevenson's Building), Room 32, Third floor.

J. BERTON, President.

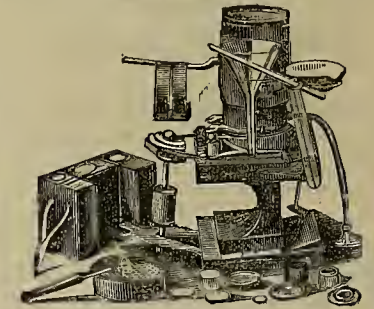
E. P. HUTCHINS, Secretary.

N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.

J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.  
423 Washington street.....San Francisco

Author of "The Explorers', Miners', and Metallurgists' Companion."  
Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.  
Patented September 7, 1869.



Arranged for the general purposes of the Analyst and Assayer.  
Price, with instructions, tools and fluxes, \$100.

Practical Instructions in all kinds of Assaying, Discrimination and Analysis.  
20-v23-4f

Situation as Chemist Wanted.

The undersigned, having completed the working course of Chemistry in La Fayette College, Easton, Pa., including Dry Assay of Ores and Blowpipe Analysis, desires a situation requiring a

Practical Knowledge of Chemistry.  
By permission refers to Dr. Traill Green, Professor of Chemistry in La Fayette College.  
B. CHAMBERS, JR.,  
Chambersburg, Pa.  
20v23-3m



**Machinists and Foundries.**

ESTABLISHED 1851.

**PACIFIC IRON WORKS,**

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.**Steam Engines and Boilers,**

MARINE AND STATIONARY,

**IRON AND BRASS CASTINGS**

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sales of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

**FULTON****Foundry and Iron Works.**

HINCKLEY &amp; CO.,

MANUFACTURERS OF

**STEAM ENGINES,****Quartz, Flour and Saw Mills,**

Huyes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

**GEORGE T. PRACY,****MACHINE WORKS,**

109 and 111 Mission Street,

SAN FRANCISCO.



These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

**STEAM ENGINES,**

Flour and Saw Mills,

**QUARTZ MACHINERY,**

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

**Improved Safety Store Hoists,**

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

**Pracy's Celebrated Governor.**

TURNING LATHES, Etc., constantly on hand.

4v23tf

**PACIFIC****Rolling Mill Company,**

SAN FRANCISCO, CAL.

Established for the Manufacture of RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

**HAMMERED IRON**

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron. 9v143m

**THOMPSON BROTHERS,****EUREKA FOUNDRY,**

129 and 131 Beale street, between Mission and Howard San Francisco.

**LIGHT AND HEAVY CASTINGS,**

of every description, manufactured 24v16qr

**Miners' Foundry and Machine Works,**

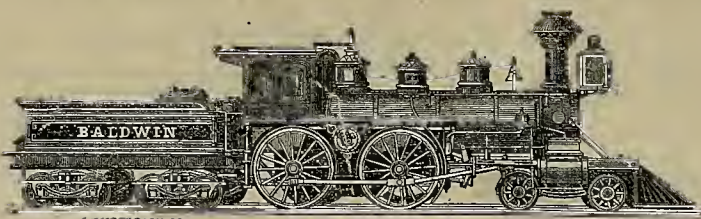
CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

7v23M

I. L. MORTLERAP, President.

**BALDWIN LOCOMOTIVE WORKS.**

M. BAIRD &amp; CO., Philadelphia,

**MANUFACTURERS OF LOCOMOTIVE ENGINES.**

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD,  
GEO. BURNHAMCHAS. T. PARRY,  
EDWARD H. WILLIAMS,WM. P. HENSLEY,  
EDWARD LONGSTRETH.

WILLIAMS, BLANCHARD &amp; Co., Agents, 218 California street, San Francisco, Cal.

apl-sow26t

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

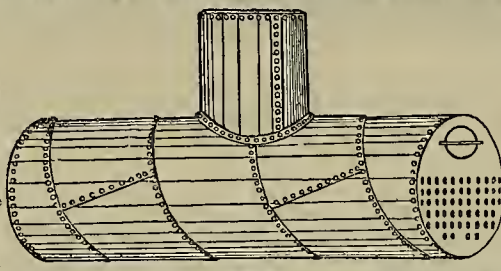
**BOILERS**

of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

**SPIRAL BOILER.**

23v22-3m

Sheet Iron Work

to every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

**JOBGING**

and

Repairing

Promptly Attended

to.

**To Coal Operators, Miners and Railroad Corporations.**

YOUR ATTENTION IS INVITED TO

**THE GRICE & LONG LOCOMOTIVE WORKS,**

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. & L. were the PATENTEE'S AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

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**THE RISDON****Iron and Locomotive Works.**INCORPORATED.....APRIL 30, 1868.  
CAPITAL.....\$1,000,000.LOCATION OF WORKS:  
Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors: Wm. Alvord, C. J. Brenham, C. E. McLane,  
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,  
James D. Walker.

WM. H. TAYLOR.....President.  
C. E. McLANE.....Vice President.  
JOSEPH MOORE.....Superintendent.  
LEWIS R. MEAD.....Secretary.

24v17-qy

**UNION IRON WORKS,**

Sacramento.

**WILLIAMS, ROOT & NEILSON,**

MANUFACTURERS OF

**STEAM ENGINES, BOILERS,**

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Donnar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

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J. O. CALDWELL, President.

REESE LLEWELLYN, Superintendent.

**COLUMBIA****Co-operative Foundry Company,**

(INCORPORATED MARCH 16, 1871),

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Manufacturers of  
MACHINERY AND CASTINGS  
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Particular attention given to Castings for Mills and House Fronts. All Work done at the Lowest Price and Shortest Notice.

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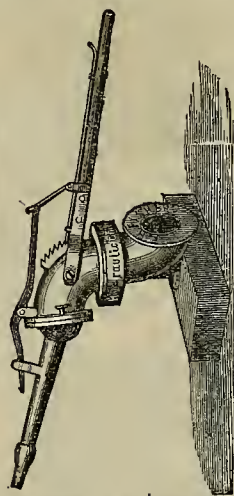
**Machinery.****HYDRAULIC CHIEF.**

FISHER'S

KNUCKLE JOINT

AND NOZZLE.

is the Best Hydraulic Machine in Use.

MACHINES MANUFACTURED TO ORDER,  
to throw from one to an eight-inch Stream.

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Address F. H. FISHER, Nevada, Cal.

**CALIFORNIA BRASS FOUNDRY,**

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Meta Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gears of superlative. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

PRICES MODERATE.

J. H. WEED, V. KINGWELL.

**CAST IRON PIPE,**

FOR WATER AND GAS.

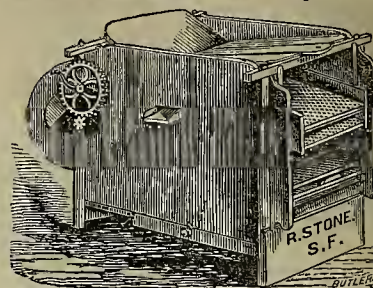
PIPE of all sizes, of a very superior quality, is now being made at the

Pacific Iron Works,

In this city, under the Patents of Farrar &amp; Whiting.

17v23-3m

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**THE PATENT Novelty Mill and Grain Separator**

Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

For further information apply to

R. STONE,

423 Battery street, San Francisco.

**WHY THE WILSON****Patent Steam Stamp Mill**

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expenses for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbog," but call and investigate its merits. One can always be seen at the Pacific Iron Works. Ten of these Mills are now in operation. For further particulars address

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**WOODWORKING MACHINERY**

MOLDING, MORTISING,  
TENONING AND SHAPING  
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Planing & Matching  
MACHINES, ETC.,

For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.  
Superior to any in use.

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**Hoisting and Pumping Machine FOR SALE.**

Engine and Boiler of 30-Horse Power; Pump 8-inch bore, 5-foot stroke, complete, with Pipe, Gearing, Friction Hoist, etc., in good order. For further particulars apply to or address

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21v23-4t Telegraph City, Calaveras county, Cal.

**McAFEE, SPIERS & CO., BOILER MAKERS AND GENERAL MACHINISTS,**

Howard st, between Fremont and Beale, San Francisco.

2v21-4t

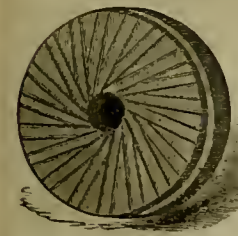


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AGENTS FOR

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Anchor brand Bolt-  
ing Cloths; Smit  
Machines; Band  
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Mill Picks dressed;  
Mill stones repaired  
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MANUFACTURERS OF  
French Burr Mill  
Stones, Portable  
Mills of all sizes,  
Salt, Paints, Drugs, &c. Mills specially adapted for  
grinding Quartz.



from 16 to 36 inches, for grinding Corn, Barley, Feed,  
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Sledges, Hammers, Stone Cutters', Black  
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13 and 15 Fremont street, near Market, San Francisco  
10v14qr

**SHEET IRON PIPE.**

THE

**Risdon Iron and Locomotive Works**

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM  
PIPE, of any size and for any pressure, and contract to  
lay the same where wanted, guaranteeing a perfect  
working pipe with the least amount of material.

All kinds of OAR WHEELS, AXLES and RAILROAD  
WORK made to order. Standard sizes of Wheels con-  
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turned, etc., at Reasonable Rates.

JOSEPH MOORE, Superintendent

**The California Powder Works**

No. 514 CALIFORNIA STREET,  
SAN FRANCISCO.

Manufacturers and have constantly on hand

**SPORTING,****MINING,  
And BLASTING****POWDER,**

OF SUPERIOR QUALITY, FRESH FROM THE  
MILLS. It being constantly received and transported  
into the interior, is delivered to the consumer within a  
few days of the time of its manufacture, and is in every  
way superior to any other Powder in Market.

We have been awarded successively

**Three Gold Medals**

By the MECHANICS' INSTITUTE and the STATE AG-  
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products over all others.

We also call attention to our

**HERCULES POWDER,**

Which combines all the force of other strong explosive  
now in use, and the lifting force of the BEST BLASTING  
POWDER, thus making it vastly superior to any other  
compound now in use.

A circular containing a full description of this Pow-  
der can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

**RICKARD & DURDEN'S****ANTI-SCALE COMPOUND,**

For the Prevention of Incrustation in Steam Boilers,

Patented July 25, 1871.

The Cheapest and Most Effective Material for the  
purpose ever introduced.

REFERENCES—Eisen Bros., Pioneer Flour Mills; U. S.  
B. Mint, S. F.; Korbel & Bros., South Park Saw Mills;  
Miners' Foundry, Pacific Iron Works, Etna Iron Works,  
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Gilmore, Etc., Etc. Send for Circular with Testimo-  
nials and Directions.

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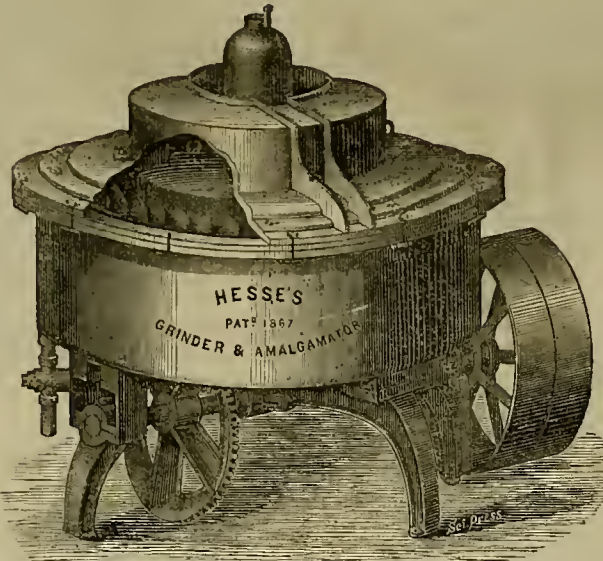
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O. M. CONNELL ..... 72 South O street, Virginia, Nev.  
MOTT, FISH & Co. .... Main street, Hamilton, Nev.

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**THE HESSE GRINDER AND AMALGAMATOR.**

This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

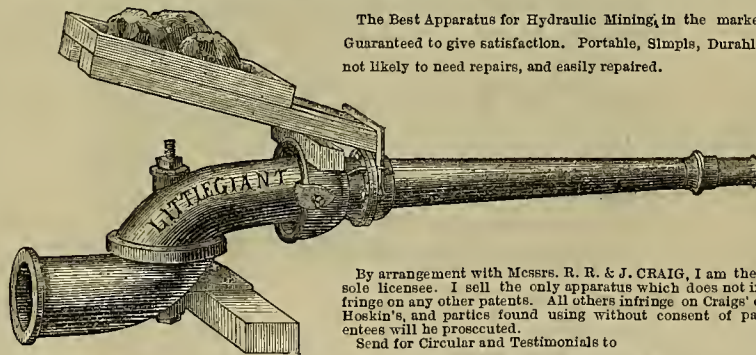
**IN THE REDUCTION OF SULPHURET ORES,**

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

fell-tf

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304 Battery street, San Francisco, Cal.

**Hoskin's Patent Little Giant Hydraulic Pipe Joint and Nozzle.**

15v23-4

The Best Apparatus for Hydraulic Mining in the market  
Guaranteed to give satisfaction. Portable, Simple, Durable,  
not likely to need repairs, and easily repaired.

By arrangement with Messrs. R. R. & J. CRAIG, I am their  
sole licensee. I sell the only apparatus which does not in-  
fringe on any other patents. All others infringe on Craigs' or  
Hoskin's, and parties found using without consent of pat-  
entees will be prosecuted.

Send for Circular and Testimonials to

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**STEAM PUMPS.**

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**STEAM TRAP.****Surface Condensers.**

DAVID STODDART,

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**THEODORE KALLENBERG,  
MACHINIST,**

and Maker of Models for Inventors. All kinds of Dies,  
Stamps and Punches made. Also, all kinds of  
Small Gears Cut.

Repairing done on very Reasonable Terms and in the  
best manner. No. 32 Fremont street, S. F. 19v23-3m

**J. M. STOCKMAN,**

Manufacturer of

**PATTERNS AND MODELS,**

(Over W. T. Garratt's Brass Foundry).

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Particular attention paid to all kinds of Fire Work,  
such as Bollards, Furnaces, Ovens, Grates, Ranges, &c.,  
Orders left with O. W. WHITE, 47 Clay Street, JOS.  
THORNHILL, 1612 Mason St., near Green, will be  
promptly attended to. 24v21-3m

**JOHN B. MORROW,****Machinist and Model Maker.**

Patent Office Models made with neatness and dispatch  
at Reasonable Rates. 247 Fourth street, San Francisco.  
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**Metallurgy and Ores.****RODGERS, MEYER & CO.,****COMMISSION MERCHANTS,**

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.  
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SWANSEA.**

RICHARDSON & Co. have been for thirty years established  
in Swansea as Agents for the preparation, Sampling, Assay-  
ing, and Sale of Copper, Silver, Gold, Lead, Zinc, and all  
other Ores and Metals, for which they have extensive Ware-  
houses and Wharves under cover, 1000 feet of Quay front-  
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advances against Ores in anticipation of realization, and to  
guarantee all payments when required. 5v22-1ys

**LOUIS FALKENAU,**

STATE ASSAYER,

**Analytical and Consulting Chemist,**

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Particular attention given to the Analysis of Ores,  
Minerals, Metallurgical Products, Mineral Waters,  
Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practi-  
cal instruction in Assaying, Analysis, or any particular  
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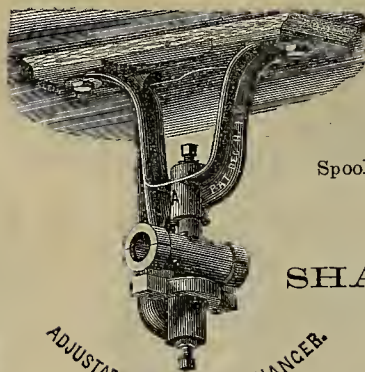
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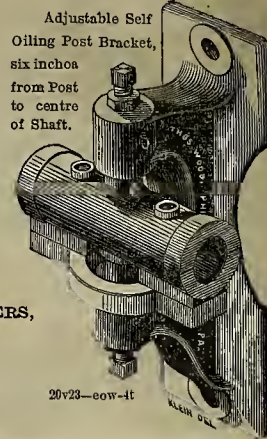
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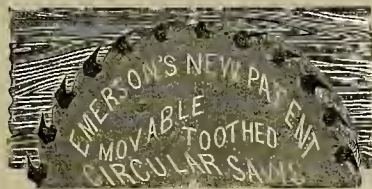
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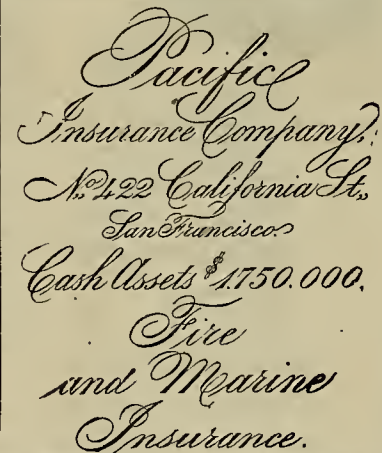
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Mining, Mechanic Arts and Inventions.

BY DEWEY & CO.,  
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SAN FRANCISCO, SATURDAY, DECEMBER 9, 1871.

VOLUME XXIII.  
Number 23.

## Academy of Sciences.

The Academy met on Monday evening, President Blake in the chair. Several ladies were present, which was something unusual, though the members seemed pleased that they should take an interest in their proceedings. Twenty-eight members were present.

### Donations.

A box containing 203 species of shells, corals, and radiates was received from A. Garratt of Tahiti. Henry Hemphill presented several species of rare shells including the *Fidelis var.*, from Dalles, Oregon; the *Cooperi* from Eastern Oregon and the *Helix Idahoensis* and *Helix Stringosa* from Central Idaho. Professor Whitney donated some interesting fossiliferous specimens found about 100 miles east of Elko, Nevada, in limestone. They were sent to the Academy for examination.

Professor Whitney made an interesting verbal report of the progress of the State Geological Survey. Salvador Morhange, Consul General of Belgium, was introduced by the President and read a paper descriptive of White Island, New Zealand, embracing some interesting facts concerning volcanic phenomena.

### Professor Marsh of Yale College

was introduced. As before mentioned he has been traveling since last June with a party of others from the same place for the purpose of collecting the fossils, etc., of the Rocky Mountain region. Many minute vertebrates from the tertiary formation of Wyoming have been gathered and they have made probably one of the finest collections in the world from the upper cretaceous formations of Kansas.

The investigations will furnish a theory which will assist in clearing up a number of geological questions, especially the relations of the ancient fresh water lake basins east and west of the Rocky Mountains. An interesting result of their researches was the discovery of miocene fauna in Wyoming Territory. The Pliocene basin, in Oregon, was found to contain a large number of fossil horses.

Dr. Blake read a paper on the waters of the Geysers and stated that the most remarkable feature was the enormous amount of ammoniacal salts which they contain. The Trustees presented the names of two foreigners—Professors Ebnenberg and Darwin as nominees for honorary membership; laid over under the rules. The volume containing the year's proceedings will be ready next month, or the month following. Academy adjourned.

**COINAGE.**—At the San Francisco Branch Mint, during November, there were 702 gold deposits, amounting to 98,310 ounces and 139 silver deposits amounting to 110,095 ounces. The coinage was as follows: Gold \$1,550,000; silver \$134,000; making a total of \$1,684,000.

**STEEL RAILS FOR CALIFORNIA.**—The *News Letter* says that the ship "Herald of the Morning" is loading a cargo of steel rails at Marseilles, for San Francisco, the first cargo of the kind ever ordered for this port.

## Snow Flakes.

Hast thou entered into the treasures of the snow.—*Job.*

Science alone can teach us to realize the full meaning of the above words. Nothing but inspiration or a higher knowledge than existed for the 2,000 years anterior to the present century, could have enabled Job to have written the sentence we have quoted. The keenest human eye can see but little of the handiwork of God, and nothing but the microscope or inspiration could teach us that almost every drop of water teems with life. Nothing else could make us realize the beautiful forms into which water will crystallize—or "the treasures of the snow."

The annexed engraving represents the various shapes of snow flakes as seen through the microscope. They are found to be composed of perfect crystals of a great variety of the most regular and beautiful forms. "It is impossible to calculate the good the microscope has done the world of



science; even religion has been benefitted by it—microscopic studies having a tendency to lift our thoughts to the great Creative Source of our being, to Him who has not designed the minutest part of the minutest object without reference connected with the whole. With its help we have been enabled to discover life and organization where, before, it was never suspected. A drop of stagnant water, for instance, when viewed through a high power of microscope, presents the wonderful sight of myriads of moving animalcules. Blood through the same medium consists of millions of little globules floating in a red fluid called serum. A crumb of cheese is literally crowded with minute living mites."

**MR. PHILLIPS' BOOK.**—We have received and just supplied a liberal number of orders for the "Miners' and Explorers' Guide." A limited edition only has been printed.

**EX-GOVERNOR BIGLER**, who twice filled the executive chair of this State died last week. He was among the first to advocate the absolute freedom from taxation of the mines and was the author of the popular phrase, "Let the mines be free as air."

## Our Mining Prospects.

The recent mining developments, in Utah and Eastern and Southern Nevada, have had the effect of directing public attention to those localities, and during next season, we may look to see that entire region, extending even into Northern Arizona, pretty thoroughly prospected. As soon as the snow is off the mountains, parties will be out in all directions, examining every part of the country, and discoveries, surpassing all hitherto made, are predicted. Whether these anticipations are realized or not, the character of the comparatively unknown portions of Utah and Nevada will be definitely ascertained, and the question of their mineral wealth, set at rest. The Utah Central Railroad is being extended southward, through Salt Lake Valley, and will eventually connect with the Southern Pacific, and in a short time the whole country will be opened up, and its mineral resources be as well known

## Meeting of the Mechanics' Institute.

A quarterly meeting of the Mechanics' Institute was held on Saturday evening last, in the library hall. The report of the Board of Managers was read. It showed that the Fair had been open to the public 24 days; number of exhibitors, 1,029; total receipts, \$62,846; total disbursements \$30,991.91; net proceeds, \$31,854.09.

The amount applied during the past term to the liquidation of debts owing to creditors of the Institute, \$20,438. Amount realized in sale of building and fixtures, \$6,800. Balance on hand and due, which has now been transferred to the Board of Trustees, \$19,096 85.

The report recommended that hereafter the practice of awarding premiums to the exhibitors be discontinued, and also suggested the propriety of procuring a permanent building for exhibitions, provided it could be done without great outlay.

### President's Report.

The report of President Hallidie showed that the debt of the Society had been diminished from \$37,000 to \$5,000. That in March, 1868, when he assumed the duties of his office, it amounted to \$53,000. The remaining debt was so small that it could be easily extinguished.

The present membership numbers 1,143, with an average monthly increase of 30.

During the past quarter, 85 new members had joined the Institute; 385 books had been purchased; \$15,000 had been paid to extinguish debts. There remained, as a balance of cash on hand, \$1,161.89; moneys receivable, \$2,935; moneys payable, \$1,500.

The financial accounts are as follows: Current receipts, \$3,240; current expenses, \$2,984; quarterly balance, \$256. The President congratulated the members on the healthy financial condition of the Society, and his report was received with applause.

Notice of motion to amend the Constitution and By-laws was given by a member, and the meeting then adjourned.

**RELIEF HILL GRAVEL MINES.**—A gentleman in this city gives us the following items: The channel proper of the Great Blue lead at this point is over 2,000 feet in width, and recent developments prove that the pay gravel continues from rim rock to rim rock. The lucky owners are just getting fairly into their mines, after years of persevering labor. The recent "clean-ups" of the Wbat Cheer and Walkinshaw Consolidated, Eagle, North Star and Union companies, showed a yield of from \$16 to \$30 per day to the hand. The above mines cleaned up, September 27, over \$20,000; middle of October, \$5,000; and November 13, \$14,673.34.

The gold in this ancient river bed is very heavy, especially in the centre of the channel, where pieces are frequently found weighing from one to five ounces, and sometimes as high as 15 ounces. The above claims have from 300 to 1,500 feet frontage, and one mile in length. The banks vary from 75 to 200 feet in height. The hill known as Relief Hill is situated 3 miles from North Bloomfield, and 17 miles from Nevada City, Cal. The net profits of these claims for less than two months exceeds \$30,000.

The Gold Bluff mines, at Downieville, Sierra county, made a partial clean-up in the early part of November from a 15-stamp mill of over \$9,000.

as those of the districts along the Central Pacific, are at present.

The distant and out-of-the-way portions of California are also claiming much attention, and some localities heretofore overlooked, are found to contain rich gravel beds and quartz leads. This is especially the case in the northern part of the State. Siskiyou county, whose remote situation has caused its mineral wealth to be almost entirely neglected, is now known to possess some of the most valuable and extensive gold bearing quartz veins and placer mines in the State, and important enterprises are being inaugurated, to develop them.

In the older mining counties, foreign and eastern capital is being introduced, and indications on every hand lead to the belief, that the coming year will be one of the most important in the history of mining in this country. The three great requisites for successful operations, capital, cheap transportation and improved processes of reducing ores, are becoming more available every day and are destined to inaugurate a new era of prosperity in mining enterprises on the Pacific Coast.

**MR. DARWIN** is engaged on a work in which the facial expression of animals will be one of the chief topics discussed.



## MECHANICAL PROGRESS.

## Audacity in Invention.

As a rule, useful inventions are the offspring of the most deliberate calculation, and their practicability is likely to be in the same ratio as their correspondence with the teachings of experience. Sometimes, however, as if to confound the wise, there occurs a marked exception to the rule. Among these was the example of a steel headed rail, now quite extensively adopted. For years an effective method of welding a steel top to an iron web had been sought in vain, until an audacious inventor proposed to put them together without welding.

The steel cap was simply so shaped that the pressure of the train would tend to converge its lateral portions upon the web below. Few believed that the plan would work; but practice showed that the jarring concussions of the wheels that had knocked the caps from other compound rails had hammered this the closer to its place, and so a daring thought and bold experiment counted for more than this most careful consideration would have done.

In another instance an inventor evolved from his inner consciousness a plan of setting the loose tires of wagon wheels without removing and heating them, as had been previously done in tire-setting machines. He proposed to compress an iron strap around the tire without taking it from the felloes, and by thus upsetting the metal upon itself diminish the diameter of the tire until it came firmly and fixedly to its place.

Most people would say that to thus upset cold iron would take more power than could be conveniently applied to this apparatus. But the inventor, nothing daunted by this apparent difficulty, tightened the iron-compressing strap with a four-foot lever and a two-inch screw; found this experiment a complete success, and built up a prosperous business upon this patent by which he secured the improvement. Examples like these, while they should not lead to hare-brained enterprises, are sufficient to show that sometimes, at least, a little courage gives better results in invention than placid and cautious "common sense."—*American Artizan*.

**IRON STEAMBOAT BUILDING ON THE MISSISSIPPI.**—The question of building iron steamboats, to take the place of wooden ones now plying on our Western rivers, is beginning to receive serious consideration. A correspondent of the *St. Louis Democrat*, writing from Chester-on-the-Mississippi, says that an agent of an English company, from London, not long since visited that locality with a view to the establishment of a yard to build iron steamers. The location is on the Illinois shore, but forty miles away from the great iron fields of Missouri, and with the water lower in the Mississippi than has been known since 1838, there is now a depth of thirty or forty feet for a distance of at least one and a half miles the whole width of the river.

It is claimed that "with the necessary facilities," iron steamers can be as cheaply built there as anywhere in the United States, or even on the Clyde. Arrangements are said to be now making for the manufacture of iron, and practical men, who expect to invest millions of dollars as fast as the work can be prosecuted, say that iron can be made at Chester \$10 per ton less than at any other place in the United States. When this fact shall have been satisfactorily demonstrated, the destiny of the place will be settled beyond question.

**THE ROLLING OF GUNBOATS—A NEW FACT ESTABLISHED.**—The British gunboats *Bustard* and *Kite* were recently subjected to experiments in order to test their rolling motion in a sea way, and discover, whether it is easier with the eighteen-ton gun in its position on the platform level with the fore deck, or when it is lowered into the well beneath; and, although the weather was not sufficiently rough to subject the vessels to a severe test, yet the result showed that they are much steadier when the gun is up in its position than when it is below. The *Bustard*, with her gun on deck, made only eleven rolls per minute, and the greatest roll was from 7° to port (leeward), to 4° to starboard (windward), but with the gun below she made fourteen rolls per minute, the greatest roll being 9° to port to 13° to starboard, being three rolls per minute more with just twice the amount of heel. A similar result was obtained with the *Kite*.

## Chapin's Transparent Waterproof Varnish.

The amount of labor required to keep finished machinery untarnished, renders a transparent waterproof varnish very desirable. In a recent visit to the Collins Co's. works, at Collinsville, Conn., we found them using such a varnish on their polished plows, to prevent rust in transportation. Inquiring as to its efficiency, we found that whereas before using it they had been at great trouble and expense in repolishing after transportation, since its use this difficulty has been entirely obviated.

As an illustration of its efficacy, we were shown a machete, or Spanish knife, about two feet long and two inches broad, one side of which had been varnished. This had been repeatedly plunged into salt water and dried, when it was found that on this varnished side the polish was as bright as ever, while the opposite side was covered with a thick coat of rust, making it almost impossible to realize that it was ever polished. We also saw portions of the varnish removed by a solution of potash and water from polished plows, which had been on more than two years, showing as bright a polish as ever.

For the transportation of machinery or any polished metal this varnish is invaluable, as it does away with the use of white lead and other substances now employed which impair the appearance of this metal and injure the finish. In point of economy it is desirable, as one gallon will cover more surface than several gallons of white lead slush, and is, at the same time, far more easily removed.

By the use of this varnish, machinery can be kept bright with a much less outlay of time, and will look nearly as well as an unvarnished surface, and, certainly, much better than most machinery is kept. It is claimed that it is equally valuable for any surfaces exposed to the weather. It also renders paper or cloth perfectly waterproof and, at the same time, transparent. C. V. Chapin & Co., Collinsville, Conn., are the manufacturers.—*Iron Age*.

**INDURATION OF WOOD.**—Wood for use should be guarded against two sources of destruction, decay and abrasion. For the first, there are numerous efficacious preventives, differing in character and cost; for the other there is at present none that can be relied upon. Wood has been saturated with a chemical substance in such manner that, when impregnated with a second, a solid substance would be deposited in the pores, thereby scouring induration and consequent hardening. This process, whatever the chemicals used, is most efficiently carried into practice by forcing the chemicals in solution lengthwise through the wood by hydraulic pressure. We believe that experiments in this line, if successful, would lead to important public benefits, and also prove remunerative to the inventor. As the material would be both water-proof and fire-proof by the process, there would be many uses other than that designated to which it could be advantageously applied in engineering, and more than in one department of the arts.—*American Artizan*.

**HOW THE FRENCH BUILD.**—The French practice in building is a good one. Instead of using flimsy lath for thin partitions, they employ stout pieces of oak, as thick as garden-palings. These they nail firmly on each side of the framing of the partition, and fill the space between with rubble and plaster of Paris. They coat the whole in the same way, as well as the under side of the stairs. Houses are thus rendered as near "fire proof" as if built of stone throughout. Nottingham, England, where they have gypsum in the neighborhood, as in Paris, they form their floors and partitions in the same solid manner; consequently a building is rarely burned down in that populous manufacturing town.

A new horse shoe has come into general use in Paris. It is imperfectly described as being a "narrow rim of iron, which gives perfect protection to the edge of the hoof, without cramping its sole." It is said to require much less weight of metal, and therefore is cheaper. Though not specified, we suspect that nails are not used. It is said to give great satisfaction—it is called the Chanlier Horse-shoe.

**SHAPING METALS—SOMETHING NEW.**—In a process lately proposed for shaping metals, a mold is made in sections to suit the article required, and a sheet of metal is placed in it, after which a cover is clamped on to the mold, and water pressure is conveyed to the interior by a pipe, whereby the metal is expanded to the counterpart of the mold.

## SCIENTIFIC PROGRESS.

## Are Men to Fly.

Darwin tells us that even in the upper region of the air, near the summits of the Andes, vultures may be seen floating onward for miles upon motionless wings. What is the secret of this flotation? Gravitation acts as forcibly on the substance of the bird as on that of the animal. Nor can we believe that there is any buoyancy, properly so called, in the bird's body or wings.

Those vultures, which seemed to float steadily through still air, must have received support from the air in one or more of the three several ways. Either by swift motion, acquired before the floating began and slowly reduced through the effects of aerial resistance, or by the action of aerial currents through which they were carried, or else, while seeming to float horizontally, they were in reality traversing a slightly sloped descending path. Neither of the two former explanations seems available, because the floating motion is continued so long that the frictional resistances of the air would almost certainly have destroyed a large share of the original motion through the air. This would equally happen whether the bird had in the first place urged its way swiftly through the air, or had floated itself off, so to speak, upon a swiftly moving air current. On the other hand, there would seem to be no valid objection against the third explanation; for a single observer, at rest, would have no means of determining whether a bird was sailing along horizontally, or gliding down a gentle incline. But it matters little which explanation of the three we except as the most plausible. The point to be chiefly noticed is the fact that, a heavy body—for this vulture is no chicken, so to speak—can be sustained, for long distances, merely by the supporting action of the air.

There can be little doubt that it is only on account of the perfect steadiness of their motion through the air that they are thus supported. The efforts of aeronautical mechanicians must be directed to secure a similar steadiness of motion for aerial facilities. Granted this, there can be no reason why the powers of steam and iron should not avail to secure an aerial motion even surpassing in rapidity the flight of the swiftest birds. Unless we are willing to believe that birds fly by some power distinct from any which physical science deals with, we seem justified in believing that the bird may be matched, or surpassed, by the flying machines, as surely as the swiftest animals are surpassed by the locomotive. It is encouraging to consider that the actual amount of power necessary to convey a weight through the air (if that support is derived directly from the air), is very much less than that required to convey the same weight by sea or land. In the presence of failing coal supplies, this consideration will one day assume first-rate importance. *Spectator*.

**SCIENCE IN AGRICULTURE.**—A writer in the *Western Rural* makes the following sensible remarks: "The sooner we throw away the phrase Science of Agriculture, and substitute Science in Agriculture, the sooner we shall be on the high-road to scientific farming. It rests upon all science, taking only a portion here and there, just as the animal crops the herbage as he passes along. He can live and even grow fat upon but few varieties, but for his full sustenance craves many. So of the farmer. He can get along better than any other profession with but little knowledge except that of mere art. The moment he reaches after that higher knowledge, it should be in such directions as will enable him to profit by it. 'The principles of science, and not the bare manipulations of art,' is what he should attain; but as a practical man, science, only so far as it may bear upon, or can be applied to his practical art."

**FREEZING BY MECHANICAL ACTION.**—M. Foselli has announced to the French Academy of Science that he had succeeded in producing an amount of cold just below the zero of the Fahrenheit scale, by simple mechanical action creating rapid evaporation. He employs a wheel formed of a spiral tube, both ends of which are open, set vertically and half immersed in the fluid to be cooled, so that the latter passes constantly through the whole length of the tube, half of which is constantly above the liquid, and being wet gives rise to active evaporation and consequent refrigeration within it. The evaporation is increased by a small fan. The principle of which M. Foselli here avails himself is of course well

known, but the multiplication of the point of evaporation by mechanical arrangements according to the method which he has originated, is certainly ingenious; and in hot, dry weather, even a disc of iron turning rapidly in liquid would produce refrigeration.

## Another Grand Scientific Project.

Among the most noticeable events in the progress of science, at the present time, is the efforts that are being made to notice the water and air forces at work on various portions of the earth, to so arrange and present them to the world as to enable man to avoid the dangers which they threaten, or take such direct advantages of the forces themselves as to make them subservient to his interests. We have noticeable instances of progress in this direction in Maury's charts of ocean currents, his publications with regard to the laws which govern air currents or storms, and the great work in which the U. S. Board of Topographical Engs. are now engaged in making daily reports upon the temperature of the atmosphere, position of the barometer, and direction of air currents, etc., throughout the United States.

The above work has thus far been more or less limited in its scope and usefulness, having been confined mostly to the territory of the United States and the seas, gulfs and oceans which surround them. But now we hear of another and still grander project, proposed by Lieut. Maury, for noticing the forces at work on the entire face of the globe, and distributing the information obtained for the benefit of producers and mankind in general. He proposes, with the aid and co-operation of the various Governments of the world, and the use of all the appliances of steam and electricity, to establish a vast system of weather and crop observations and reports, which shall keep producers in all lands informed of what is going on all over the globe, so that they may know where with they are competing and what their prospects are in the market.

"In this age of steam and rapid communication" remarks a contemporary, "the grain-grower of Illinois is a competitor of the grain-grower of the Danube, and the cotton-planter of Georgia must measure the value of his crop by the products of the fields of India and Egypt. That this measure may be accurately made as the seasons advance, Prof. Maury has projected the scheme referred to. He believes that man has already in his hands powers and agencies which will enable the grain-grower of the West and the cotton-planter of the South to know, as the season progresses, the probable supply of the staples in which he is interested in all quarters of the globe, and when the times of harvest come in the different climes, to be informed with approximate precision of actual quantities sent into the market. The benefits of the scheme are apparent; its practicability is no more doubtful than of many other great undertakings which have been carried through to success seemed to be when they were first projected."

## Frost Work Imitated.

Among the curiosities of recent scientific discovery, may be instanced that made by M. Bertsch, and turned to practical account by M. Kuhlmann, the celebrated chemist. M. Bertsch has found that Epsom salts, or sulphate of magnesia, dissolved in beer, together with a small quantity of dextrine, or artificial gum, applied to a pane of glass with a brush, will, on crystallizing, produce the identical designs formed on the glass by frost in cold weather, with this improvement, that the liquid may receive any color whatever, at the option of the operator. M. Kuhlmann, however, conceived the idea of going a step further, and transferring those fairy-like creations to stuffs and papers. By means of a powerful hydraulic press, the minutest details of the figures in question were duly imprinted on the soft metal, and a copy of them in relief was then obtained by galvanoplastic. But in the impression of cotton stuffs, the patterns must be continuous, whereas in M. Kuhlmann's plates the lines at one end would fail to coincide with those at the other, causing disagreeable interruption in the printed designs. To overcome this, he ingeniously effected the crystallization of the cylindrical surface of a roller. A slight rotary motion imparted to it, prevents the liquid from accumulating at any particular point before it is evaporated.

SILVER stains may be removed by bleaching with chloride of copper, and then washed out with hyposulphite of soda, and afterwards with water.



# CORRESPONDENCE.

## Argenta, Blue Wing and Vipona Districts, M. T.

[By our Traveling Correspondent.]  
Argenta District.

This district is situated about 15 miles north of Ryan's Junction, on the main stage road to Helena, and bids fair to become one of the most promising mining localities in Montana. The district was for a long time considered to be worthless, until several parties came here who took an interest in mining affairs, and who built some furnaces and went into business extensively.

### Bohn's Silver Works

are located about half a mile from the town. I visited these works with the Superintendent and manager, Wm. F. Bohn. There is a large frame building, 70x66, and 26 feet high, with additions. Three cupola furnaces are used, each 9 feet square, and 10 feet from bottom to feed hole; chimneys, 30 feet. They each have two tweers. The furnace is lined with large square rocks, found in the vicinity, that stand, on an average, 21 days' run. Six tons of ore are run through every 24 hours, and they turn out about one and a half tons of bullion daily. Two furnaces are run constantly, while the third is being repaired. They have a good water privilege, by means of which they run the crnsber and blower. One of Root's Patent Blowers, No. 3, gives good satisfaction. Twenty men are employed, night and day. They have 60,000 bushels of charcoal laid in for the winter, which costs about 23 cents per bushel. The ores are secured from the different districts of the neighborhood.

They commenced operations in June, 1871, and up to November 1st had shipped 2,700 pounds of silver, retaining the lead to be shipped in the spring. The bullion assays from \$250 to \$500 per ton in silver. The charges are combined of galena and other silver-bearing ores from Bannock, Vipona, Brown's Gulch and Blue Wing Districts; and they claim that, by judicious mixing of the different classes, they are enabled to work to 95 per cent. of fire assay. A composition of clay and charcoal is used in front of the furnace for the slag to run over, which is tamped down solid once a day. A large lump of charcoal is put in front of the tap-hole, to keep it hot. This furnace is similar to the one illustrated in the SCIENTIFIC PRESS of Aug. 20, 1870. These works have been a grand success, and the owners contemplate enlarging them next spring.

### The Tools Mining Company

were the first to commence the smelting business in this section, and have been very successful. The energetic Superintendent, Mr. C. W. Stapleton, has built three furnaces, one for refining. The large furnaces are of the same style as those described above. The company are now repairing their works, and the roads being in a bad condition, will do no work this winter. Among the

### Principal Mines

of this district are the Ferdinand and the Sunnyside, both producing argentiferous galena, and looking well. These mines are located on a mountain back of the town, the formation being of limestone and granite. Quite a number of claims are being worked, with good prospects.

### Vipona District

is located 40 miles north of Argenta, and contains some valuable mining properties. Mr. Patton has one of the best mines, and sells his ore to the smelters for \$35 per ton, on the dump; hauling to Argenta costs about \$25 per ton. Some 15 or 20 lodes are already located, and others are being discovered daily.

### Blue Wing District

is situated 7 miles from Argenta, on the road to Bannock. There are several furnaces running. The Blue Wing mine, owned by A. Murray, has a shaft 180 feet deep on a ledge, the ore of which averages \$50 per ton. The Brick Pomeroy is also a good mine. The "New Departure" bids fair to be a promising mine, and ore is coming out that averages \$50 per ton and upwards. It is owned by C. W. Stapleton.

W. H. M.

## FROM COUNTY TO COUNTY—PLACER.

Eds. PRESS:—Again I find myself amidst the scenes of life and activity among the miners. This county, which has produced such a large amount of gold, still holds in possession unknown quantities of the precious metal which the energetic miners are striving hard to procure. We hear daily of parties finding "big prospects" which bears evidence that the county is not yet thoroughly prospected; still some persist in saying that the mines are exhausted and mining here will soon be an occupation of the past.

On Iowa Hill are located some of the richest gravel deposits in the State; but the scanty supply of water prevents successful operations; still, some extensive prospects are in contemplation and the prospects never were better for having in speedy operation a number of canals, which will supply a naturally well-favored country abundantly.

Preliminary surveys have been made upon several of the most practicable routes from Lake Tahoe down, though none are yet decided upon; also for other canals of lesser importance to be filled from the various branches of the American river. All of these undertakings must prove profitable and their completion will be heralded with joy, as they alone can develop this country—which is rich in mineral, with a soil capable of raising all the agricultural products could it be irrigated. So though the undertaking may appear stupendous, and the difficulties to surmount, many, if overcome, and the work accomplished, they will of a certainty reflect great credit upon the builders, and what is more important, pay fine dividends.

### Truckee, Nevada County.

Now we can consider ourselves high up in the heavens, 5,845 feet higher than at San Francisco. The morning air begins to feel wintry and the frost sparkles brilliantly in the sunlight. It is enjoyable to inhale the pure bracing air of this region, and it bears a fragrant freshness gratefully associated with a pleasing scenery. The town has suffered severely from fire. Three times within twelve months has the devastating element almost swept it away. Three times has it been almost rebuilt, and the last time, I am pleased to see with fire-proof structures. The persistence of the people, despite their misfortunes—which have been successive,—is indicative of good luck.

### The Resources of the Town

are its milling facilities and lumber. There are many sawmills, both steam and water. Yet the forest above but small inroads into its vastness, though the work has been vigorous for three years or more.

### Donner Lake.

Three miles above Truckee lies the well-known Donner Lake, and it will not do to pass it by unnoticed. There is a wild tale connected with this lake, which is known to many of your readers, and here are still the burnt ruins of old cabins and high stumps with names inscribed thereon. The lake is a most beautiful one, looking like a sheet of silver as it opens out to view through the heavy timber that surrounds it. Full of fish, and provided with its little sailing boats, it is a delightful spot to spend a few days in recreation and pleasure.

As we cross the summit, we take a farewell look at our little mountain city, and passing on through a series of snow sheds we are soon raised to the summit 7,017 feet above the sea. On through the grazing and lumber fields the train carries us until in a short time we find ourselves in Placer county once more, and we reach

### Dutch Flat.

Here some of the heaviest hydraulic mining in the country has been done and an enormous extent of ground has yet to be worked profitably with the well-regulated facilities they have at command, and their only drawback just now is a scarcity of water. The town contains about 2,000 inhabitants, and is prospering.

### A Cement Mill

has just been erected by Messrs. Cox & Brown. They are using one of Cox's patent cement washers, which is working admirably, and will undoubtedly prove a successful invention, supplying a want that has long been felt.

### Gold Run.

is three miles from the "Flat," in the heart

of the placer mining district. Though these mines have not proved to be very rich, they have always paid well, and are so conducted that they are valuable. There is no doubt a little emulation existing between this place and its sister town above; but the people bear an air of contentment, and while they try to outvie each other in business they mutually strengthen each other.

### Prof. Goodyear,

connected with the State Geological Survey, has been making quite extensive geological researches this year throughout this section. The miners all desire to hear the result of his investigations which will be of interest to every one connected with mining matters.

### Rising Sun Mines.

Back to the quartz region again, I find located about two miles east of Colfax a fine mill of twenty stamps, and what is evidently a paying mine, judging from some of the specimens I saw, that were finely studded and seamed with gold. The shaft is down about 300 feet, and the work goes on night and day.

### Auburn.

Of this place enough is already known to leave space for but little more. Three miles down the ravine is Ophir. The placer diggings were very rich here, but its wealth is not yet known. The St. Patrick, Bellevue, Green, Shipley, and several other mines are in active operation. The Empire Mill will soon be in operation again. This mill unfortunately was nearly destroyed by fire during September, the loss being severely felt by many. NINO.

## San Diego Mines.

EDITORS PRESS:—Having said in my last week's letter that I would write you again this week, I will give you some further items with regard to our mines. I told you last week that the De Frees' mill had commenced crushing a lot of 50 tons of ore from the Big Blue ledge (owned by Evans & Stratton), that was estimated to return \$50 per ton; but when they cleaned up, much to the surprise of the lucky owners, it returned \$112 per ton. The Owens' lode still shows the large ledge of fine ore spoken of in my last, and certainly have one of the finest ledges in the State. The California is still improving in size and quality; they will soon commence drifting, to take out ore for crushing. The Van Wert Co. are having ore crushed at the De Frees' mill, which, from appearances, will keep up the reputation of that mine for good ore, never having had ore crushed that yielded less than \$22 per ton.

Since the Big Blue rock was cleaned up, there has been a great deal of prospecting in that neighborhood, and Thos. Stratton, one of the owners in the Big Blue, found a ledge showing rich in free gold, about 300 feet above the Big Blue. Col. De Frees also found one on the same hill, the same day, showing as good prospects as any of them. Mr. Joseph Parsons found a ledge on High Peak Hill, last week, that prospects 25 cents to the pound. The Stonewall, Capt. Frang's mine, is looking as well as ever. A new and rich strike was made last week in the Antelope mine, Banner District. The Madden Co. and Kentuck are still taking out rich ore. The Blue Ledge, owned by Capt. Dye & Co., was leased last week to O'Brien & Co. This ledge has as rich ore as any found in the district, and is supposed by many to be on the same ledge as the famous Golden Chariot, or King mine, being on the same range, and the ore being very similar. The Golden Chariot improves every foot they sink on it; the rock now being taken from the mine, judging from the last crushing of \$156 ore, will go \$200. The Redman mine, under the supervision of A. W. Whitney, Esq., has again commenced hoisting rock; the new engine and pump, received from San Francisco last week, having been set to work, frees the mine from water without any trouble, and they will soon have ore enough to commence crushing. Everything now wears a lively appearance in San Felipe Cañon. J. W. Cullen, formerly of the Cary House, Placerville, and Orleans Hotel, Sacramento, has nearly completed a commodious hotel near the McMechan mill.

We have not yet found a ledge that shows ore worth \$52,000 per ton, like the Gwinn mine, in Calaveras; but we challenge the coast to show a district that can

show as many ledges of \$25, \$50, \$100, \$200, or \$500 ore, as Julian and Banner Districts of San Diego county, Cal. We want more capital to assist in developing our mines. L. B. H.

Julian City, Nov. 21, 1871.

## Aveling & Porter's Improved Road Engine.

Dr. OUR NEW YORK EDITOR.  
[Concluded from last week.]

We probably cannot do better than give here a brief table showing the performance of the road steamer "Sutherland" at Tottenhall, compared with that of the "Steam Sapper," of which we have just been speaking at the Star Hill, Rochester. The details of the two performances are as follows:

	Road steamer "Sutherland," with in-larubber tires.			Messrs Aveling & Porter's "Steam Sapper."		
	tons.	cwt.	qr.	tons.	cwt.	qr.
Weight of engine.....	10	10	0	6	4	1
" on driving wheels	7	11	1			
" of train hauled	26	4	0	15	6	2 1/2
Weight of train including engine.....	36	14	0	20	10	3 1/2
Weight of train hauled	2.5			2.94		
Weight of engine.....	3.5			3.94		
Weight of train including engine.....	3.47					
Wt. of train hauled.....						
Wt. on driving wheels.....						
Average gradients....	1 in 20.3			1 in 18		
Maximum.....	1 in 18			1 in 11		
Speed in mis. per hr....	2.05			2.15		

"This comparison shows that, notwithstanding the much steeper gradient, and slightly higher speed, the rigid-wheeled engine took up a greater load in proportion to its weight than the road steamer, while the proportion between the load hauled, and that on the driving wheels, was probably almost exactly the same. These facts, we think, speak for themselves, and we think that they form the most complete reply which could be desired to the somewhat curious deductions—such, for instance, as those contained in Mr. R. W. Thoman's paper, lately read before the British Association—which have been made from the Tottenhall trials by some advocates of india-rubber tires."

From a perusal of the reports which have lately been given in the SCIENTIFIC PRESS, of the trials at Wolverhampton, in soft ground, between the competing engines of the "india-rubber" and "rigid" wheel classes, it will be evident that the rigid wheels got through their work immeasurably better than the rubber wheel; and now it certainly appears as if a properly constructed rigid wheel can, on hard ground, pull at least as great a load as the expensive rubber-wheeled engine, costing nearly double the money at first cost, and also nearly double the money per day to run it.

At the New York State Fair, held at Albany on October 3d, one of Aveling & Porter's Road and Farm Locomotives was awarded the First Premium. It was set at all manner of farm work, such as dragging a ditching machine, threshing, etc.; and then the machine was formed into a train, as it is called, or "limbered up," ready to be hauled away; and the little engine took them along as easily as though each machine had its own team of horses and driver. In this way they were hauled all about the grounds (which were in a soft and greasy state), turning corners, and going up and down hills with perfect ease. Mr. W. Churchill Oastler, of 43 Exchange Place, New York, is the American agent of these engines. He will be happy to furnish any further information in relation to them, that may be desired.

A JOLLY LIFE.—Insects must lead a truly jovial life. What must it be to lodge in a lily! Imagine a palace of ivory or pearl, with pillars of silver and capitals of gold, all exhaling such a perfume as never arose from censer!

Fancy again, the fun of tucking yourself up for the night in the folds of the rose, rocked to sleep by the sighs of summer air, and nothing to do when you awake but to wash yourself in a dew drop, and then fall to and eat up your bed-clothes!

It is said that there are six thousand less cabinet makers in Paris now than there were at the commencement of the recent war, and that furniture carvers are totally without employment.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### AMADOR COUNTY.

**MILLS STARTED.**—Amador *Dispatch*, 2d: A number of quartz mills in the vicinity of Sutter creek and other places in this county, which have been idle for several months on account of the scarcity of water have commenced crushing rock since the recent rains.

**RICH ROCK.**—Amador *Ledger*, Dec. 2d: We were shown by the Pres., of the Kennedy M. Co. a piece of quartz rock, weighing 3 or 4 lbs taken from the Kennedy mine at a depth of 500 ft., literally filled with free gold, and rich gold-bearing sulphurets. The late accident to the machinery has been fully repaired, and the mill is now pounding away on first class rock with enough of the same sort developed, to keep the mill constantly employed for twelve months without further sinking.

### CALAVERAS COUNTY.

**UP COUNTRY NOTES.**—Calaveras *Chronicle*, Dec. 2d: The storm at Railroad Flat has given a sufficient supply of water to give the miners plenty of work.

**W. V. Clark** is hauling pipes to his hydraulic claim preparatory to commencing work, his ditch now being full of water. The German boys, at Independence Flat, have a large pile of drift dirt in their claim ready to wash; and several other claims have drift dirt.

The Randolph quartz mill is now idle there being no rock at present. Most of the claims are sinking. The Petticoat is down about 100 feet, on the new contract, with a fair ledge and favorable prospects.

Rock is being hauled to Clark's hydraulic quartz mill on "Two Dollar Gulch." Mr. Clark is now laying down a new and much larger pipe than the one used. The mill has a capacity of 8 stamps and requires but 15 inches of water.

The Railroad Flat Quartz M. Co., have pushed their tunnel with energy and last week struck a lead.

**GWYN MINE.**—Every thing is progressing favorably. Better rock is being taken out than ever before; and all the batteries are kept in constant motion. The yield of the mine averages \$1,000 per day. New mills are in process of erection and by the 1st of March 100 stamps will be put in operation.

**WORKED OUT.**—The great tunnel claim of Paul & Co., near the Junction, is working out. The tailings yet remain to be washed, however, and it is expected that they will pay fully as well as the gravel did.

### LASSEN COUNTY.

**HAGDEN HILL MINING DIST.**—Cor. Reno (Nev.) *State Journal*, Nov. 25th: The only mine in this district from which ore is being worked is that of the Providence Co. This Co. is 70 ft. down on their lode; at this depth the vein of gold-bearing quartz is 4 ft., wide and gradually growing wider. The cissing walls are well defined. The Co., have a 4 stamp mill, and are running it to its full capacity and average about \$300 per ton in gold. The mill has only been running a short time. The Co., propose to add another battery of 4 stamps in a short time. The Providence lode runs nearly north and south. About 2 miles to the north and nearly on the same range is the Hayden mine which bids fair to be quite as good as the Providence. There are many other mines in the vicinity which have been partially prospected; among them very favorable prospects have been obtained from the Accidental, Ament and Wolverine.

### MARIPOSA COUNTY.

**REBUILDING A QUARTZ MILL.**—Mariposa *Gazette*, Dec. 1st: The Feliciana mine at the head of Buffalo Gulch, has been leased to J. Dolan of Bear Valley, who has let the contract of rebuilding the mill to D. Knight. Work was commenced on it several days ago.

### NEVADA COUNTY.

**A RICH STRIKE.**—Nevada *Transcript*, Nov. 29th: The Murchie Bros. have struck a very rich mine on Little Deer Creek, about a mile from this city. Some years ago they worked the same ledge and took out some very rich rock, when they were compelled to stop for want of machinery. This fall they put up hoisting works and again commenced work. They succeeded in striking a ledge from 2 to 3 ft. in thickness, upon which they have been working for several months. They have kept 4

stamps of the mill on Big Deer Creek in operation and have a big pile of rock ahead. The rock already crushed has paid from \$35 to \$40 per ton and the ledge now looks better than ever.

**MINING.**—From every section we hear of preparations being made for extensive operations, and the indications are that more gold will be taken out during this season than any previous one. New claims are being opened and old ones are to be reworked.

**RICH ROCK.**—The Pittsburgh mine is yielding some very rich rock. The mine looks better than it has for a long time.

**PENNSYLVANIA MINE.**—The Pennsylvania mill, on the outskirts of this city is to receive an additional battery of 4 stamps next week. The ledge is increasing in thickness. The quartz being raised to the surface is very rich, being filled with galena and rich sulphurets, while the coppers after a few hours run are thickly coated with amalgam.

**PROVIDENCE MINE.**—New hoisting works are to be put up and the mill repaired. The mine will be opened in a new place.

**HUESTON HILL MINE.**—Several contractors are taking rock from the mine, and are doing well. A few days ago 20 loads of rock were crushed and the yield was \$2,400.

**THE GOLD TUNNEL.**—The hoisting works on the Gold Tunnel mines are now in operation and the new incline is down to the depth of about 80 ft.

**MONITOR LEDGE.**—Grass Valley, *Republican*, Nov. 28th: The Monitor ledge, 2 miles east of Nevada City, after lying idle for several years, has recently been reopened by W. J. Organ and others. The first 20 tons of rock from the ledge yielded \$20 a ton.

**SALE OF A GRAVEL MINE.**—W. B. McLane and V. G. Bell have purchased of the South Yuba Canal Co. the extensive gravel claims at Blue Tent, known as the Central M. Claims.

**ALTA No. 3.**—Certain parties are making arrangements to recommence work on Alta Hill, adjoining the Hope ground. Alta No. 3 has no less than 100 claims of 100 ft. each included within its location.

**MOORE'S FLAT.**—The mining prospects are good.

**A PERSEVERING CO.**—The owners of the Independent Gravel Mine, adjoining the Town Talk Mine, at Union Hill, have been prospecting their claim for 14 years, and have expended in assessments and labor from \$25,000 to \$30,000. They have a tunnel in a distance of 1,500 ft., and they are now working 30 ft. below the tunnel by means of a shaft. They are working on what appears the main channel, which is about 30 ft. wide, and prospects well. They are down nearly 200 ft., and their prospecting has been done without machinery.

**DARTMOUTH MILL.**—The Dartmouth mill has its new 10-stamp battery with plates and shaking tables nearly completed. Next week the owners expect to commence crushing their gravel and cement. They have recently run a tunnel 325 ft. through very hard rock and struck blue gravel. This prospects well, but the Co. will drive their tunnel ahead, in order to strike a body of yellow gravel, that is exceedingly rich, and known to exist near the blue gravel.

**GOOD GRAVEL.**—Grass Valley *Union*, Dec. 2d: The Picayune Co. in Randolph Hill, has struck good gravel in their tunnel, which is at a point near where the Webster Co.'s shaft first reached the bed-rock. The Picayunes have gravel which prospects so high as 75 cents to the pan. The Co. will begin to wash out gold as soon as water sufficient to open the proper cut below the tunnel can be obtained.

**SCHULKILL MINE.**—The total expenditures at the mine up to Nov. 1st ult., were \$4,031.97. A tunnel has been run 170 ft., the total cost being \$2,975. For sundries the cost has been \$1,056.97.

**KNIGHT OF MALTA LEDGE.**—We yesterday saw some fine specimens of gold bearing quartz taken from the ledge. It is being worked at a depth of 50 ft., and is fully 3 ft. in thickness, with gold visible to the naked eye. The rock is also rich in sulphurets.

**LOCATION.**—National *Gazette*, Nov. 29th: The Declaration Quartz M. Co., have located 3,600 ft. of a quartz ledge on Deadman's Flat, near the Independence tunnel, Grass Valley dist.

### PLUMAS COUNTY.

**STILL PAYING.**—Plumas *National*, Nov. 25th: The Betterton ledge in Mohawk Valley is still paying from \$50 to \$75 per ton.

**NEW STRIKE.**—Wm. Elwell & Co. have discovered a valuable quartz lode in Mohawk Valley, immediately across the river from Betterton's rich claim, and supposed to be a continuation of it.

**ARGENTINE.**—The quartz lode on which Mr. Conklin is operating is paying extremely well—\$30 per ton being the lowest. The ledge increases in richness the lower they descend.

**PLUMAS AND SPANISH RANCH DITCHES.**—The parties connected with the sale of these ditches have gone below for the purpose of consummating the same. Many persons are earnestly engaged in prospecting for paying claims in localities covered by these ditches, which will be put in complete order early in the coming spring.

**SLUICE ROBBING.**—\$200 was realized by some unknown person from the sluice boxes of Asa Healdsted & Co., Rush Creek Flat, last week.

**EUREKA MINE.**—Some very rich rock is being taken out. English capitalists have recently visited the mine, having in view the purchase of the same.

**MASSAO LEDGE.**—Euesler & Co. have located a quartz claim with fine prospects, on the head of the old Massao ravine, and will commence operations in a few days.

### SIERRA COUNTY.

**MINES IN SIERRA COUNTY.**—G. V. *Republican*, Nov. 28th: Miners are only waiting for water to enter largely into operations. Mining prospects have not been so good for years. Many large lumps have been found this season; one from Ksnaka creek, a half mile from Alleghany was valued at \$1,600 with several other pieces from \$25 to \$2 or \$3 each.

### SISKIYOU COUNTY.

**ELIZA MINE.**—Yreka *Journal*: The mill at the Eliza Ledge, on Humbug, is kept constantly in operation to its full capacity, by Lash & Stino, and the quartz crushed, realizes the usual good pay.

### TULARE COUNTY.

**COAL.**—Tulare *Times*, Nov. 25th: F. Bacon of Cottonwood ranch, exhibited to us some specimens of stone coal, which he reports as having been discovered some 30 miles from Visalia. He has sampled the coal and believes it to be of good quality.

## Nevada.

### COPE DISTRICT.

**LUOIN.**—Cor. S. L. *Review*, Nov. 29th: Mines are developing favorably, Buel & Bateman's furnace is ready to start up the first of the month, with thousands of tons of fine carbonate ore in sight, enough to run it for a year at least. The Lucy Emma mine, supposed to be the next best mine in the dist. to the Tecoma, at 90 ft. down, shows a well defined vein, with clay and some good ore.

### EUREKA DISTRICT.

**MCGEARY DIST.**—Eureka *Sentinel*, Nov. 25th: [This is the new district which we mentioned last week.] From E. P. Raines, we gather the following: The first discovery was made about 3 weeks since. The exact extent and value of it cannot be determined yet. The general indications and prospects, however, are promising. One mammoth ledge showing croppings 100 ft. in width, is spoken of in favorable terms. Two claims, of 1,200 ft. each, located on the main vein, disclose flattering prospects. They are called respectively the Rambling Boy, and Fair View. On the former, a shaft has been sunk 27 ft. in good milling ore, assays from which have been obtained varying as high as \$140 per ton. The Fair View ore also shows a value of about \$106 per ton. It is believed that the entire mass of ore contained in this great vein will average from \$30 to \$40 per ton.

**PINTO MILL.**—Matters are progressing finely at the mill.

**MAGNOLIA CO.**—The working of their valuable locations is being prosecuted with vigor, and developing finely. The Newport is being vigorously worked, producing large bodies of ore. A new ore-house is being erected. The work is being done in the shaft by night and day shifts. A depth of 41 ft. has been attained disclosing a width of 6 ft., continuing in ore all the way from the top. On the Newport No. 3 the ore is being sacked ready for shipment, and is of very high grade. Another location south of the Newport is called Meredith, shows a fine body of ore uncovered.

**FISH CREEK DIST.**—This shows a good prospect of becoming one of the leading dists. Mr. McCormick the first discoverer of the ledges has made many locations, some of which prove to be of most excellent quality, both as to richness of the ore and extent of the deposits. The Queen ledge is considered the most promising of the vein, containing galena ores running as high as \$542 in silver. The galena is mixed somewhat with carbonate of silver, and is perfectly adapted to smelting purposes.

**MORGAN DIST.**—Some weeks ago H.

Hamilton and others started out on a prospecting trip. First visiting Fish Creek Dist., they proceeded on westerly from there, and struck similar good indications, which, on investigation proved of considerable extent and value. The party immediately formed a dist. naming it Morgan. This new dist. is about 15 miles in a southeasterly direction from Eureka, and is well supplied with wood and water. But little work was done on the location made, but that revealed good rock, averaging by actual assays from \$50 to \$200 per ton. The ore was principally milling rock, though good indications of base metal existed.

**DIAMOND DIST.**—E. J. Elzy, one of the owners of the Champion series of mines, says that at no time since their discovery have the various locations looked so well. Pieces of mineral shown us to-day are evidences of exceeding richness; in fact in some places "the pure stuff" could be cut with a knife. The property is under bond and will probably change hands soon.

### ELY DISTRICT.

**BULLION.**—Pioche *Record*, Nov. 26th: W. F. & Co. shipped since Nov. 19th, bars of bullion valued at \$75,922.43.

**RAYMOND & ELY MILL.**—Everything in and around this mill is progressing finely. The building for the new 30-stamp mill is going up rapidly, and will be in complete readiness for the machinery, which is looked for almost daily.

**NEWTON BOOTH.**—The claim is located on the flat at the upper end of Main street, but a short distance from the Lightner shaft of the Raymond & Ely Co. The first contract of 50 ft. was completed some time since, and a second one has been let to sink the same depth, and is nearly completed, the shaft being down about 80 ft. Indications are most flattering, as one ledge has already been cut through and good ore is again coming in on the bottom.

**NEWARK.**—Mr. Caldwell, an owner in the Newark mine, situated about 500 ft. east of the Lightner shaft, showed us a fine specimen of ore closely resembling that taken from the above shaft, which had been struck at a depth of 90 ft. They have a good vein at that depth, with a prospect of it coming in big within 10 ft.

**ANOTHER MILL.**—H. Raymond is about to erect a 10-stamp mill in Bullionville, close to the old 5-stamp mill. Machinery, etc., has been ordered, and the work will be prosecuted with vigor.

### HUMBOLDT.

**BULLION.**—Humboldt *Silver State*, Dec. 2d: Amount shipped from the Arizona mine, since our last issue, was \$6,795.

**CONTRACT LET.**—The Peru M. Co. has let a contract to sink 75 ft. on their lode, and to drift on the present level of the tunnel the same distance ahead, the contractors to have all the ore taken out as compensation for their labor.

**SHEBA MINE.**—The workmen are bringing to the surface large quantities of shipping ore of a superior quality. They have struck into a very large body of the kind of ore which made the Sheba mine famous in the early days of Humboldt mining. The mine is looking very well.

**NEW FURNACE.**—The Pioneer Co. has determined to build a furnace at an early day.

**ECLIPSE MINE.**—The owners are pushing work with energy. From the point where the ledge was struck in their main tunnel they are driving both ways with 2 sets of miners, taking out the ledge as they progress, which is found to be nearly all pay ore. The north drift, which drives straight into the mountain, is now in 60 ft. from the main tunnel, and shows a ledge full 4 ft. in thickness, carrying considerable quantities of good shipping ore, while nearly the whole of the remainder may be classed as a good quality of milling ore.

**WILD ROVER MINE.**—For several months past some miners have been quietly at work, on a claim in Sacramento Cañon, not far from the Old Webster mine. At a depth of 70 ft., reached a short time ago, they came upon a 4 foot ledge, containing large quantities of black sulphurets ore, which created quite an excitement. The Wild Rover is situated about 9 miles from the Central Pacific R. R.

**CUMBERLAND MINE.**—This mine in Gold Run Dist. has been leased, or bought, by the Ahurn M. and M. Co. at Reno, which has put a force of men to work upon it.

### REESE RIVER.

**FINE BULLION.**—Reese River *Reveille*, Dec. 1st: The Metacom mill started out with a good showing. Mr. Barclay, showed us the finest bar turned out by the mill since the introduction of the late improvements. It weighs 78 lbs and is stamped as follows: No. 1; oz. 1143; fine, 930; value \$1,284.64.

**PRUIN AND PULLEN.**—Good ore is coming from this mine in considerable quantity.



ties. The ledges are still large and look well.

**A NEW INCLINE.**—Williams and Sandow are sinking an incline just above the Jane Ledge works on the same lead. They are down about 36 ft., have a large ledge, and are getting a considerable quantity of ore. The rock is of low grade but looks well.

#### WASHOE.

**OVERMAN SHAFT.**—Virginia *Enterprise*, Nov. 26th: The new Overman shaft was yesterday down 250 ft.

**OPHIR SHAFT.**—The new Ophir shaft was yesterday down 1,162 ft.

**ITEMS.**—Gold Hill *News*, Dec. 2d: Last week the Hale & Norcross yielded 1,000 tons of ore. The average value of which was \$37.60 per ton. The Chollar Potosi yielded 934 tons, the assayed value of which was \$41,000. This mine shows improvement of late in its ore-producing sections.

#### WHITE PINE.

**EBERHARDT.**—White Pine *News*, Nov. 25th: A fair quality of ore is now in sight and is shipped to the mill by tramway. The drift running from the Keystone shaft is going ahead as usual. A marked improvement has taken place in the character of the ledge matter since last report.

**NORTH AURORA.**—The three drifts from the Lado's Chamber to connect with the Ward Beecher are going ahead steadily. The drift running south from the Risdale chamber is in a body of over-average ore, which is hoisted from the Attwood shaft and sent by tramway to the mills.

**WARD BEECHER.**—The east drifts running from the Phillips shaft continued to show an abundant quality of good ore.

**SOUTH AURORA.**—The object in putting the Mitchell shaft down is to make connection with the lower tunnel. Fair beadway is made in sinking. The drift to connect the Turner with the Trewell shaft is going ahead steadily. Fair progress is made in the lower tunnel, with the appearance in the face as reported last week.

**GENESEE.**—The new shaft is going down with fair speed. The formation now in the bottom is quartz.

**POCOTILLO.**—The tunnel is running ahead in good ore.

**GEN. LEE.**—The sup. commenced shipping ore to mill to-day.

**NOONDAY.**—The extent of ore body has not diminished, and the grade keeps up to an average of \$100 per ton. Ore is being shipped for reduction at the Big Smoky mill.

**EDGAR.**—The drift from the 100-ft. shaft is in a body of ore the extent of which cannot readily be determined, as neither foot nor bang wall has yet been reached.

**GREAT WESTERN.**—Contractors have pushed the new contract ahead 12 ft. since our last report.

**ASBURY TUNNEL.**—The main tunnel is in about 300 ft., and the side drifts are pushed ahead as usual. Bunches of ore come in frequently in the side drifts.

**SILVER WAVE.**—Work on the 4 shafts now in operation is done by contract. The Perkins shaft is down 27 ft. in limestone. Lyford, down 50 ft., with spar in the bottom. Chenoweth, down 88 ft., with quartz and spar in the bottom. Shaft No. 4 is 104 ft. deep, with quartz, spar and mineral (mixed) in the bottom. A force of men will be put on shortly in the old chamber, where there is a fine body of ore in sight.

**EAST SHEBOYGAN.**—The English Co. have made the final payment on this property. Connection is nearly made between the Exchange and Regent shafts, and the ore now in the face of the drift is of higher grade than has ever been taken out before. The ore body in the South original tunnel holds its own for high grade ore. The ore house will be up the coming week.

**OUTSIDE DIST.**—Piedmont.—A shaft is sunk on the South end to a depth of 70 ft., and a large body of ore cut which assays from \$50 up to \$300 and \$400 the ton. On the southwest a shaft has been sunk to a depth of about 60 ft., and the ore is about the same quality as in the other shafts.

**TRIOY.**—Work will commence on the furnaces as soon as the brick is burned. Hoisting works are in course of erection, and will be completed as soon as possible.

**FRIEBERG.**—The Morning Star has been purchased by Judge C. C. Goodwin. A force of men are now at work opening the mine.

**GRANT.**—Miners are at work developing the mines of this camp, which are looking well.

**WEST SIDE—TRENCH.**—The ledge has taken a well-defined course, with hanging wall pitching northeast. The ore averages 3 ft. wide, and shows the same quality of ore as reported heretofore. Hoisting and piling on dumps.

**MILLS—INTERNATIONAL.**—Running on Co. rock.

**OASIS.**—Running on Co. rock.

**MANHATTAN.**—Running on Beecher con. rock.

**STANFORD.**—Running on South Aurora rock.

**SWANSEA.**—Working Edgar rock.

**MONTE CRISTO.**—Running on Trench rock.

#### Arizona.

**PINAL MINES.**—Thoson *Citizen*, Nov. 29th: From a private letter dated Florence Nov. 9th, we extract as follows: We (Capt. Korr and others) have, in a prospecting tour of less than three weeks, located some 18 or 20 splendid looking silver lodes, and formed three mining districts—all favorably situated in regard to wood and water.

Our first success was the discovery of the Holsted Dist., some 15 miles up the Gila road from Florence. Our first location here was the Kerr Lode—an immense ledge which crops out boldly in some places 40 feet from the surface and can be traced for miles on each side through a limestone and slate formation. This is a true Ossure vein, and shows metal in large quantities in places along the ledge. The ore is a chloride and grey sulphuret rock, with a small percentage of copper and antimony and perhaps a little arsenic. The other ledges in this district are of the same character varying in size and richness but all shows good prospects.

From Holsted Dist. we went to the picket post, where we were lucky in finding a very rich ledge the Silver Queen. Samples of the rock went over \$6,000. We made 5 other locations in this Dist., all showing fair prospects, but none so rich as the Silver Queen.

Our third discovery, the Nevada Dist., embraces along Mineral creek, where we will find placer diggings, as the country looks favorable. In this Dist. our rock is all smelting rock; as far as we have yet discovered it is argentiferous galena and grey and yellow carbonate ore, the same character as the Emma Rock, Little Cottonwood. Some pieces that we made a rough assay of, went over \$600.

#### Colorado.

**MTS. LINCOLN AND BROSS.**—Caribou *Post*, Nov. 25th: The Moor Lode, Mt. Bross is exposed for 400 ft., disclosing a crevice varying from 12 to 18 inches in width, and of nearly uniform value. Before the cold weather set in 40 tons of this ore were raised and netted \$300 per ton. A parcel from the Dwight Lode, belonging to the Moor Co., returned \$280 per ton.

**MINING.**—The Hinds & Heitzer stamp mill, at Middle Boulder, is obtaining from 8 to 9 ozs. of gold per cord from the lot of coarse Trojan ore on which it is making its test run. The Trojan is to be worked this winter for stamp-mill quartz. The Boulder Co. is now worked at 5 different points, and much smelting ore is being raised, but a great deal more of very good stamp-milling ore.

**PARK CO.**—Cor. Central City *Register*, Nov. 22d: Breece, Barnard & Co., are in exceedingly good pay on their end of the "Printer Boy."

J. M. Paul & Co. run through \$9,000 worth of ore last month, from their lode, the "Printer Boy;" \$3,000 was the expense.

Mining on the river is being prosecuted vigorously. A great many are rocking, but more eluicing.

The "Pilot" mine is yielding satisfactory results. The "Five-Twenty" mill will be run by Paul & Co. as long as the water will permit. They have water sufficient to run 10 stamps only.

No work has been done on the "Yankee Blade" lode, at Granite, for over a month. The lode is said to be very profitable, but its owners are "freezing" each other out.

#### Idaho.

**BULLION SHIPMENT.**—Silver City *Analanche*, Nov. 25th: W. F. & Co. shipped from here this week 7 bars, valued at \$8,800.15.

**STARTED.**—Idaho *World*, Nov. 25th: Carvan's mill at the Keystone ledge started up last Thursday and has been running steadily ever since. There is a good supply of ore on hand, and the mill will run for some time before any clean-up will be made.

#### Montana.

**KEATING LODE.**—Helena *Gazette*, Nov. 20th: J. Keating of the Keating Lode, at Keatingville, Jefferson Co., brought in yesterday a piece of amalgam worth \$8,143, the result of the last run.

**HELENA SMELTING WORKS.**—The 4 stacks of the smelting works are completed and stand above the roof of the building. We believe that everything will be ready and operation will be commenced on the first proximo.

**WEST SIDE.**—The mines in Bear and Deep gulches are doing well. H. Brown

has leased the Camanche mine and the James Stuart mill at Phillipsburg.

**LAROE CLEAN-UP.**—Conrtr Wright & Harvey made a clean-up last week from the Evelina Lode of some 400 ozs. They have some 24 men at work in the mine, and are keeping the Harvey mill in full operation crushing quartz. The Evelina is on the Park, just above Unionville, and, has been yielding heavier than any mine in this vicinity.

**JEFFERSON CITY ITEMS.**—A Co. is putting up a large furnace a short distance west of town. It will be finished in two weeks.

The lodes around here that have been lying idle 4 or 5 years past are being developed by their owners. There are more than 80 miners working between the Gregory lode and Clancy creek, sinking shafts and running tunnels, and all around us can be seen on every hill, men sinking shafts and opening their leads, while others are prospecting. A few good leads have been discovered during the past month.

#### Utah.

**LITTLE COTTONWOOD.**—S. L. *Tribune*, Nov. 25th: Some very rich mines have been opened lately that did not crop out—blind lodes, that merely show a small seam of ochre below and near the surface. Several of these that have been followed down during the last 30 days have resulted in important discoveries of rich ore. One called the Lexington, south of Central City, and about 1,000 ft. above the town, at a depth of 20 ft. shows a body of ore 7 ft. wide, that ranges in assays from \$80 to over \$400, with regular pipe clay walls. A peculiarity of this vein is that the ore so far is ochre that can be picked and shoveled out without any blasting,—quite light, and containing chloride of silver and some gold, but no galena as yet.

**CAMP FLOYD.**—The Silver Cloud owners are preparing to work on an extensive scale, having laid out a tunnel 600 ft., which is already made 125 ft.

The ore generally in the dist. is similar to that of the Silver Cloud, and a new discovery called the Little Pem, assays all the way from \$50 to \$8,000.

A number of assays on ore from the Vespasian mine, Bingham Canon, prove it to be one of the most valuable mines in the county.

**STAR.**—The dist. is only a few months old and has already 100 locations. A statement of assays show, that there is rich ore in the Horn Silver lode, going as high as \$1,240.

Work is to be prosecuted with vigor in the mines of Little Cottonwood during the winter. In the Flagstaff shaft the ore is to be let down on sleds a distance of 1,640 ft.

The Emma mine is getting out its usual amount of ore, and expects to continue shipping through the winter. It will send along some 40 tons per day.

The Davenport is to resume work in a few days, and the Wellington is working right along and will continue to do so, as also the South Star.

**OPHIR.**—Cor. S. L. *Review*, Nov. 24th: The Irene, is on the south side of the canyon, about 500 yards from the Brevoort mill. The vein is 6 ft. wide and had only 15 ft. in, and produces free milling ore. It has a slate wall on one side and limestone on the other, and is a fissure vein.

Close to this mine lies the Malakoff, a new discovery, and an extension of the Irene. They are sinking a shaft and it already shows a vein of 14 ft. Two assays on the Irene ore have been made, one \$500 and the other \$800.

The Black Hawk mine a few feet below the Irene shows a vein of 5½ ft. of regular black spar and free milling ore; no base metal whatever. They have tunneled in the mine about 16 ft.; the average of 8 assays yields \$60 to the ton.

This mine is very close to the mill, the distance being about 100 to 125 yards. There is a shaft on the ledge about 40 ft. in depth, the ledge being 5 ft. wide; it is free milling ore, and assays from \$300 to \$400. There are 1,000 ft. in the mine.

**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For home use and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original 'Home' Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. Export Chicory Mills, Cruges, Belgium. fe25-ly

**N. Seibert's Eureka Lubricators** for steam cylinders are acknowledged by all engineers to be superior to all others they ever used. The oil is regulated by pressure of water into the steam pipe; the glass tube indicates the amount used; economy and regularity of feed is accomplished; no waste of oil on the outside of the engine; no trouble to the engineer; one pint of oil will last from three to nine days, according to speed and size of engine; packing on stems and rods lasts longer; rings do not rust or gum, and will pay for themselves in a short time in the saving of oil, over the old style; are warranted to give satisfaction. Patented February 14, 1871. Manufactured by the California Brass Works, 126 First street, San Francisco. 8v23-3r

\$5 to \$20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Nearborn street, Chicago, Ill. 23v1-12mbp

#### San Francisco Mining Stock Market.

THURSDAY EVE., Dec. 7, 1871.

There was no session of the Stock Board on Thanksgiving Day. Stocks have been in fair demand during the latter part of the week. Only 520 tons of ore were taken from the Chollar Potosi last week, assaying \$36.40 per ton. Bullion shipment on Saturday, \$11,000. From the Meadow Valley mine, \$145,000 have been received on November account. During the month of November, 5,700 tons of ore were sent to mill from the Belcher. The receipts from the Caledonia mine for November, were \$26,500. The Chollar Potosi Mining Company's receipts for November, were \$76,000.

#### Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

Alpha.....	Dec. 1, Highest.	Lowest.	Dec. 7, Adv.	Dec.
Amador.....	10	9 1/2	—	—
Belcher.....	38 1/2	35 1/2	36 1/2	—
Chollar-Potosi.....	34 1/4	32 1/4	34 1/4	1 1/4
Caledonia.....	12 1/2	10 1/4	12 1/4	—
Cons. Virginia.....	11	11	12	—
Crown Point.....	37 1/2	35 1/2	—	—
Oaney.....	8 1/4	7 1/4	7 1/4	—
Empire Mill.....	19	17 1/4	19	1 1/4
Eureka.....	20	20	20	—
Golden Chariot.....	26	26	23	—
Gold & Curry.....	112	110	120	3
Hale & Norcross.....	117	114	110	—
Imperial.....	36	35	—	—
Ida Elmore.....	5 1/2	5 1/2	6	7/8
Kentuck.....	150	148	148	—
Mammoth.....	69	65	65	—
Meadow Valley.....	33 1/4	31	32 1/4	1 1/4
Occidental.....	28 1/2	23	—	—
Orion.....	8 1/4	7 1/4	8 1/4	—
Overman.....	22 1/2	20	21	1 1/2
Plover.....	8 1/4	8	8 1/4	1 1/4
Raymond & Ely.....	104	75	75	—
Savage.....	49	49	47 1/2	1 1/2
Sierra Nevada.....	—	—	—	—
Silver Wave.....	4 1/2	4 1/2	4 1/2	—
Yellow Jacket.....	58	56	56	—
St. Patrick.....	32 1/2	32	32 1/2	—
Seg. Belcher.....	24	22	22 1/2	1 1/2

#### Latest Prices—Bid and Asked.

Alpha Cons.....	BID.	ASKED.	Ida Elmore.....	BID.	ASKED.
Amador.....	28 1/2	30 1/2	Imperial.....	—	—
Belcher.....	36 1/2	38 1/2	Kentuck.....	—	—
Chollar-Potosi.....	33 1/4	34	Meadow Valley.....	31 1/4	32
Caledonia.....	350	360	Ophir.....	—	—
Oaney.....	7 1/2	8	Orig. Hid. Treas.....	8 1/2	8 1/2
Eureka Cons.....	19	19 1/2	Overman.....	20 1/2	21
Eureka.....	25	26	Savage.....	47	47 1/2
Golden Chariot.....	21 1/2	22	Raymond & Ely.....	75	78
Gold & Curry.....	117	119	Sierra Nevada.....	—	—
Hale & Norcross.....	—	—	Yellow Jacket.....	56	57

#### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the *BORN-TIFIC PRESS* and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY
	DELINQUENT.	OF SALE.
Albion, G. Valley, Cal., Oct. 31, 25c.....	Dec. 4—Dec. 26*	
Bellevue, Placer Co., Cal., Nov. 1, \$1.....	Dec. 27	
B. & C. Co., Nev., Nov. 27, 50c.....	Dec. 14—Jan. 2	
Con. Vir., Nev., Nov. 9, \$1.50.....	Dec. 13—Jan. 6	
Osney, Lyon Co., Nev., Nov. 27, \$1.....	Dec. 30—Jan. 18	
Eagle Quicksilver, Cal., Oct. 30, \$40.....	Jan. 6—Jan. 8*	
Ely Consolidated, Nev., Nov. 27, 60c.....	Jan. 8—Jan. 30	
Emerald Hill M. Co. S. L. Co., U. S. Nov. 3, 10c.....	Dec. 11—Jan. 2	
Golden Chariot, Idaho, Nov. 15, \$3.....	Dec. 23—Jan. 15	
Ida Elmore, S. M. Co., W. Va., Dec. 1, 50c.....	Jan. 4—Jan. 27	
Ida Elmore, I. T., Oct. 19, \$2.....	Nov. 24—Dec. 16	
Keamsburg, Inyo Co., Cal., Oct. 21, \$5.....	Nov. 24—Dec. 26*	
Knickerbocker M. Co., Storey Co., N. Nev., Dec. 4—50c Jan. 7, 26		
Lillian Hall M. Co., Ely Dist., Nov. 18, 50c.....	Dec. 27—Jan. 23	
Magnolia, Eureka Dist., Nov. 27, 25c.....	Dec. 29—Jan. 19	
Mahogany M. Co., Idaho, Nov. 11, \$2.....	Dec. 19—Jan. 10	
Meadow Valley, Ely Dist., Nov. 23, \$1.50.....	Jan. 4—Jan. 27	
Nevada Cons. B. Co., Nov. 25, 5c.....	Jan. 10—Jan. 29*	
Orig. Hid. Treasure, W. P., Nov. 24, \$1.50.....	Jan. 3—Jan. 26	
Overman, Nev., Nov. 25, \$2.....	Dec. 29—Jan. 15	
Overman, Nev., Nov. 20, \$4.....	Dec. 26—Jan. 23	
Peter Walter, Placer Co., Cal., Nov. 14, 75c.....	Dec. 30—Jan. 9	
Phoenix Lander Co., Nev., Nov. 21, 50c.....	Dec. 27—Jan. 16	
Reedley W. E. Ely Dist., Nov. 23, \$1.50.....	Jan. 4—Jan. 27	
Reedley W. E. Ely Dist., Nov. 23, \$1.50.....	Jan. 4—Jan. 27	
San Jose Co., Nev., Oct. 20, \$5.....	Nov. 23—Dec. 11	
Seaton M. Co., Cal., Oct. 27, \$20.....	Dec. 2—Dec. 30*	
South Eureka Co., Nev., Oct. 24, 25c.....	Nov. 30—Dec. 23	
Spring Mount Co., Ely Dist., Nov. 27, 50c.....	Jan. 7—Jan. 29	
Starlight G. and S. M. Co., Nov. 1, 25c.....	Dec. 11—Jan. 2	
Southern Nevada Co., Wyo., Nov. 15, \$3.....	Dec. 7—Jan. 8	
South Eureka M. Co., Oct. 11, 25c.....	Nov. 14—Dec. 11	
St. Patrick, Placer Co., Oct. 18, \$4.....	Nov. 22—Dec. 11	
Talmeah G. S. & C. Co., Dec. 5, \$8.....	Jan. 9—Jan. 30*	
Tellmish M. Co., Humboldt Co., Nev., Nov. 29—\$1 Jan. 3, 30		
Union Gravel M. Co., Cal., Oct. 11, \$2.....	Dec. 12—Nov. 30	
Washington & Crooke, Nev., Oct. 27, 50c.....	Jan. 5—Feb. 1	

#### MEETINGS TO BE HELD.

Cole S. M. Co.....	Annual Meeting, Dec. 13
Oaney.....	Special Meeting, Dec. 28
Oavid Crockett.....	Annual Meeting, Dec. 4
Empire Mill and Mining Co.....	Annual Meeting, Dec. 20
Golden Sun M. Co.....	Annual Meeting, Dec. 11*
Mamula G. M. Co.....	Special Meeting, Dec. 14
Northern Hydraulic M. Co.....	Annual Meeting, Nov. 29
North American Con. M. Co.....	Annual Meeting, Dec. 4*
Ophir S. M. Co.....	Annual Meeting, Dec. 20
War Eagle.....	Annual Meeting, Dec. 11

#### LATEST DIVIDENDS.—(Within Three Months).

Black Diamond Coal M. Co.....	Payable Sept. 15
Chollar Potosi, \$1.....	Payable Sept. 9
Chollar Potosi, \$1.....	Payable Oct. 10
Chollar Potosi, \$1.....	Payable Dec. 11
Chollar Potosi, \$1.....	Payable Dec. 11
Eureka Cons., \$1.....	Payable Sept. 20
Eureka Cons., \$1.....	Payable Oct. 20
Keystone M. Co., \$2.....	Payable Sept. 15
Meadow Valley, \$1.....	Payable Sept. 15
Meadow Valley, \$1.50.....	Payable Nov. 8
Natoma.....	Payable Dec. 5
Plover S. M. Co., \$1.....	Payable Sept. 15
Raymond & Ely, \$1.50.....	Payable Sept. 15
Raymond & Ely, \$5.....	Payable Nov. 17
Succor Mill and M. Co., 50c.....	Payable Sept. 15
Succor Mill and M. Co., 50c.....	Payable Oct. 16
Yule Gravel M. Co., 50c.....	Payable Oct. 5
Yule Gravel M. Co., 50c.....	Payable Oct. 14
Yule Gravel M. Co., 50c.....	Payable Nov. 4
Yule Gravel M. Co., 50c.....	Payable Dec. 5

\*Advertised in this journal.

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors. Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-keeping are taught.

Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TAYLOR, Oakland, Master Fifth Class. 5edpht



## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

Sulphurets containing gold may be assayed either by fusion in a crucible with the proper fluxes, or by scorification. Many assayers consider the crucible assay the best, but experience has convinced me that scorification gives the most correct results. To allow the reader an opportunity to judge for himself, I shall give both methods in detail.

Before a crucible assay can be made, the sulphurets must be roasted, and if not already fine must be pulverized and sifted. It is now generally admitted that a mechanical loss of the precious metals occurs even when the sulphurets are roasted with the greatest care. Unskillful manipulation often leads to mechanical loss of the assay by portions being thrown over the sides of the vessel used, during the constant stir-

with more care. As the roasting progresses, the assay becomes less and less fusible and may be gradually pushed back to the hottest part of the muffle until it has attained a red heat and no more fumes or odor are given off.

The assay is then removed from the muffle, allowed to cool, and transferred to a good Hessian crucible. Litharge equal to six times the weight of the assay, its own weight of borax, about one gramme of argol or charcoal and a mixing spoonful each of carbonate of soda and carbonate of potash, are put into the crucible with it, and the whole stirred thoroughly with the mixing spoon. The crucible must then be tapped against the table to cause the charge to settle down level.

The surface of the charge is then covered evenly with common salt. Upon this are to be placed several lumps of borax, and the crucible is ready for the fire. Two crucibles should be prepared in this manner.

For the fusions a very strong fire will be required. The crucibles may be placed in such position that they cannot fall over,

each milligramme of gold obtained, will equal one Troy ounce of gold to the ton of 2,000 pounds, which multiplied by \$20.6718 will give the value of a ton of the sulphurets.

The assayer cannot be too careful in sampling sulphurets before assaying them. Even with the greatest care in sampling it is difficult to obtain the assays exactly alike.

It is best to make several where great accuracy is required and to take a mean of them all as the correct result.

Sometimes where the roasting has been imperfect, the lead button resulting from the fusion in the crucible is brittle, when this is the case it may be placed in a scorifier with a little borax and melted in the muffle. After 10 or 15 minutes exposure to the air in a fused state it may be poured out into the mould, cooled and hammered. It will then be found malleable and in a fit condition for cupelling.

## IMPROVED CORN HUSKER.

The great extent of the Indian corn crop throughout the United States, makes

for articles not in the list of awards offered.

This machine has taken no less than eight first premiums this season, at fairs in the Eastern States. At the fair at Rochester, N. Y., it was awarded the first premium of \$10, besides a \$50 premium for the most useful invention relating to agriculture, patented during the last three years.

The larger machines for husking from the stalks, can be conveniently run by any of the ordinary horse-powers.

The machine consists of a frame about three feet long and two and one-half feet in width, made of three-inch joists. Across one end and near the top of the frame are placed two picking rolls, formed with screw threads on each roll, and gearing into each other.

The stalks are fed between these rolls and fall in front of the machine, in good condition for binding, and divested of every ear, great or small.

The ears, as they are separated from the stalk, fall upon the husking rolls placed lower down on the frame, at right angles to the picking rolls and in an inclined position.

Upon the surface of one or both the



PHILLIPS' SPIRAL CORN HUSKER.

ring which is necessary to allow the fumes of volatile matter to escape.

The amount taken for assay depends upon the supposed richness of the sulphurets. If of extraordinary richness, ten grammes or even five will suffice, but ordinarily 29.166 grammes are taken for convenience of calculation as shown in a former article.

This amount is carefully weighed out into a large scorifier. This is placed in the mouth of a hot muffle, where the heat is not great. By means of a pair of tongs it is frequently turned until all the water has been driven off. The scorifier must then be pushed forward to a point where the heat is greater. When fumes begin to pass off, the assay must be stirred. This is done with a piece of bent wire, one end of which is fixed into a wooden handle.

If the heat is raised too suddenly, the assay is likely to partially fuse, in which case perfect roasting is impossible unless the scorifier is removed and the contents cooled and pulverized before making a second attempt, but as a loss by such treatment is nearly certain, it is better to weigh out a new charge and make a second trial

and hot coals are then built up around them; when the contents begin to fuse, a cover is placed upon each crucible and the draft of the furnace so arranged that the greatest heat may be produced. After a few minutes the cover of one of the crucibles, must be lifted and the action of the heat on its contents observed. If the charge has melted down and is in a quiet state of fusion, both covers may be removed and that condition maintained for five or ten minutes more. If such is not the case, the cover must be replaced and more time allowed to elapse. It is necessary that perfect fusion should be effected to insure accurate results. When the contents of each crucible are perfectly fluid and intensely hot they may be removed, and after tapping against the sides of the furnace to cause all particles of lead to gravitate to the bottom, they are set aside to cool. When cold the crucibles are broken and the buttons of lead hammered into cubos and cleaned preparatory to cupellation.

In cupelling, the muffle may be very hot; there is no danger of loss of gold as in the case of silver assays. The button of gold which is left in the cupel must be melted with five times its volume of silver, and boiled in nitric acid as described in a former article. This is necessary, as the silver contained in the litharge will be alloyed with it, and would give false results if this were neglected.

If 29.166 grammes were taken for assay,

of the utmost importance any invention by which the labor incurred in its production may be lessened. The slow and tedious process of husking the ears is a great item of expense, and has led to the introduction of many different machines for this purpose, none of which have heretofore fully surmounted all the difficulties encountered, but have proved for the most part failures. The machine, however, represented in the accompanying cut, has shown itself perfectly successful in practical use, and will be of the utmost interest to our readers.

According to the census reports the annual yield of Indian corn in California several years since, was 1,000,000 bushels. It is probably twice that amount at the present time, and the introduction of corn huskers will be of great advantage to our farmers. Both the hand and power machines, of this patent, were worked successfully at the last California State Fair. They were set up without any assistance from an experienced artisan, just as they were received from the manufactory in New York, and were run without difficulty or hindrance, to the surprise and satisfaction of all farmers and others, who witnessed their operations. They were awarded a diploma—the first premium—

husking rolls, are spiral depressions or grooves, which answer the double purpose of allowing spikes to be put upon the opposite roll corresponding with the depressions or grooves, and allowing the ear to settle down between the rolls, so that the grip upon the husk may be more certain. These depressions and spikes being placed spirally upon the rolls, grip the husks first at the end of the ear, and continue the grip to the opposite end, making the process of stripping the husk from the ear very similar to that of hand husking.

The machine does its work thoroughly, stripping the husks and silk from every ear and nubbin, whether it be large or small, hard or soft. The stalks are delivered in a crushed state and in a much better condition for fodder than when left solid, and they also rot quicker in the manure heap. The husks are delivered in so good condition as to be worth from \$50 to \$70 per ton for industrial purposes in some Eastern places.

An ordinary two-horse power used for thrashing will drive the machine, and with the hand machine two men can husk 400 bushels per day.

The machine can be seen at the store of Weister & Co., patent brokers, No. 17 New Montgomery street, under the Grand Hotel, who are agents for the sale of the machine and for State rights for the Pacific States.



## USEFUL INFORMATION.

## Artificial Leather.

Much has been said of late with regard to the production of a new article of commerce, known as "artificial leather," manufactured chiefly from leather scraps. So much interest seems to be manifested in this new article of commerce, that we here reproduce some remarks of a scientific contemporary in relation to its mode of production, its physical characteristics, and its probable future value. We copy as follows:

It is almost superfluous to say anything in regard to the great value of a cheap and good process for the utilization of leather waste. This waste represents millions of dollars annually. A process that could reproduce a texture of these cuttings, only half as good as the original leather, would be one of national importance, and would at once establish a new industry. The process by which the specimens above referred to are made, is, however, claimed to make uniformly an artificial leather even superior to ordinary tanned sole leather.

Examination of these specimens reveals the following facts: It is much harder than ordinary leather, and does not yield to hammering or compression nearly as much. It is very flexible and elastic. Thin shavings of it possess as great tensile strength as shavings of equal thickness of common oak-tanned leather. It is nearly, if not quite, impervious to water. It cuts smoothly and easily in working. With regard to its durability under wear, we have no doubt it would wear longer than sole, provided it does not decompose by exposure. We have no means of determining this latter point, but we are assured that it does not decompose or change under the ordinary circumstances of wear to which leather is exposed in its various uses.

It is claimed that the leather thus made is equally good for soles or belting; and our tests as to its tensile strength, flexibility and elasticity, certainly go to corroborate the claim.

A really good method for making artificial leather of scraps has, as our readers are well aware, long been sought; but heretofore nothing has been obtained that combined all the essential properties of good leather. The method under consideration was first brought out in Copenhagen, Denmark, and has been patented both in Europe and America.

The ingredients employed and their proportions are as follows: For first quality, one pound of caoutchouc for each three and a quarter pounds of leather pulp. For other qualities, the proportion of leather pulp is increased variously up to six for one pound of caoutchouc. The caoutchouc is dissolved in benzine or other solvents, and, when sufficiently dissolved, aqua ammonia is added in the same proportion as that of the rubber, and the mass is thoroughly stirred until it assumes a greyish white color. The leather pulp is then added, and the whole is kneaded into a plastic homogeneous dough of uniform consistency, which can be pressed or moulded into any required form, or rolled into sheets, as may be required.

The ammonia is claimed to act upon the animal glue in the cuttings, restoring to it its usual vitality, which it has lost to a great degree in the process of tanning.

The following are some of the properties and uses of this remarkable substance, as claimed by Mr. Oerting: Its waterproof quality makes it especially valuable for pump leather, as well for cold as hot water, and also for harness, as even a continued exposure to all kinds of weather has no effect on it, occasioning neither rot nor crack. It can be made endless, or of any length, width and thickness required, and of perfect uniformity as to wear, which is generally well known to be impossible with leather belts made of shorter pieces of different hides, and of unequal wearing capacity. It will stand any amount of heat and friction, as well as the most intense cold; will stretch less than any other belting, and can be changed from one pulley to another with ease and rapidity. It is very strong and substantial in the edge, and will stand a great amount of ill use without suffering any injury, and through its combined properties will supply a desideratum much needed. By suitable machinery for moulding, or forming the material in its doughy state into hose, fire-buckets, etc., for which purpose it is especially adapted on account of its impenetrability by water, and its capacity to withstand any amount of hardship, as well as extreme heat or cold, it will certainly

make the best as also the cheapest material yet produced for such purposes.

By a different mixture and proportion of the ingredients, a matting for floor covering is made, which, on account of its cheapness, its waterproof properties, and its capacity to keep rooms protected from cold and dampness, makes, it is claimed, an unequalled article for covering offices, passageways of public buildings, etc., which will withstand an immense amount of wear, and can very easily be cleaned. It is stated by the producer that the cost of the materials employed in its manufacture amounts to about 11 1-7, 13 1-2, 16 1-5, and 19 cents per pound for the different qualities, besides from 12 to 14 ounces of scrap leather, which prices, calculated after the present rates of the raw ingredients, would be reduced at least to 15 per cent. by a direct importation in larger quantities.

**LINSEED OIL.**—Linseed oil is made from the seeds of the flax plant (formerly called lint-seed), by grinding them in a mill, and pressing the powder by hydraulic or other power. When first pressed it is of a golden yellow color, but soon collects impurities from the air and turns brown. The impurities can be washed out by stirring water into it thoroughly, and leaving the water to settle. It contains no stearin, and hence does not congeal at low temperature. Its chief use is in decorative and preservative painting. Being mixed with the powdered colors, and spread on wood, stone or iron with a brush, it soon dries and hardens into a coating which acts as cement, varnish, and shield from weather. To quicken its drying it is often boiled before using. It is sometimes used in medicine as a laxative, and for this purpose is made from the raw seed without roasting. It is quite an important article of commerce.

**VALUE OF AMERICAN PATENTS IN EUROPE.** The American origin of an invention, says the *Anglo-American Times*, is now a recommendation in Europe, where many of these inventions are in successful operation, and large fortunes have been realized by their introduction. Improvements relating to some manufactures are of great value in this kingdom. Mr. Bessemer derives an annual income of about \$2,000,000 from his British steel patents, and the patentee of a device for dressing millstones by a revolving diamond, has realized over \$1,000,000 the first year of his patent. The use of a diamond for this purpose is an American invention, and the estimated value of the exclusive right in England, for ten years, is \$5,000,000. British patents, as a rule, are the most valuable, but many inventions are equally profitable in other parts of Europe, and some are peculiarly adapted to Continental wants and customs.

**MAGNETISM OF WATCH SPRINGS.**—It has recently been discovered that the springs of chronometers and watches, which are constructed of steel, are frequently magnetic. Steel is at all times liable to become magnetized from causes beyond man's control. Watchmakers are advised to test their springs as to magnetism, by placing them near to a very small and truly balanced mariner's compass. If the spring exhibits in none of its circumference any tendency to attract one pole of the compass more than the other, it may be considered free from magnetic influence; on the other hand, if the north pole to the other, the spring is decidedly useless; for in whatever position the time-keeper may be placed with such a spring it will be affected with the earth's magnetism.

**SALERATUS FOR LIFE-BUOYS.**—A self-inflating life-preserver has been devised in Belgium, consisting of a belt containing carbonate of soda and tartaric acid, so arranged that, when the wearer falls overboard, the two substances are mixed and evolve sufficient gas to float him. The idea is said to have been suggested by a shipwrecked apothecary, whose life was saved by the circumstance of his having a box of Seidlitz powers in his pocket.

**NITRO GLYCERINE.**—When nitro-glycerine is caused to fall drop by drop upon a thoroughly red hot iron plate, it bursts off as gunpowder would under the same conditions; but if the iron be not red hot, but hot enough to cause the nitro-glycerine to boil suddenly, an explosion takes place.

**THE Farmers' Club,** of Santa Clara, "solicit communications from all who have information to give, or who desire to receive information from the Club."

**WOOL EXPORT.**—About 12,000,000 lbs. of wool—6,000 tons—have been exported from this State during the past nine months.

## GOOD HEALTH.

## Importance of Healthy Action of the Bowels.

There is nothing which one can do with a little care, more likely to aid decidedly in the preservation of health, than to ensure regular and healthy action of the bowels.

The bowels are properly a tube, canal, or passageway, through which a certain proportion of the waste matter of the body should pass. Mainly, these waste matters are made up of substances eaten which are indigestible, and matters which are secreted in the bowels from the blood, forming what is called feces, or waste matters of the bowels. This collection of matters needs to pass out of the body as often as once in twenty-four hours. If neglect is had in this respect, and the substances there gathered are permitted to remain longer, unnatural heat of the part is established, and so disorder of the organ begins.

I would, therefore, urge intelligent action with reference to the evacuation of the bowels every day, and in this direction of the following suggestions:

**First.** Let your food be made up in part of substances which cannot be acted upon by the gastric juice and made into blood, but which, retaining the original form, are carried all along through the intestines until reaching the lower howel they gather and are cast out at stool.

Whoever eats food which is altogether nutritious, will find after awhile that it is not healthy. A certain proportion of food of every meal needs to be made up of coarse materials which do not make blood. These serve the purpose of exciting the mucous membrane of the intestines to action, thus causing the proper excretion of the waste matters to flow into the howels, and thus aiding in purifying the blood of substances which, remaining in it, would greatly deprave it. The bread which you eat should be unholled, and for that matter, unleavened when cooked. If you eat fruit, a portion of it should be eaten with the skins on, such as that of good nice apples or pears. Berries retain their seed, grapes are healthy for persons of constipated bowels, eaten with the skins, though the seeds should be expelled. Potatoes are more valuable as food if they are haked and the skins eaten, than if they are hoiled and the skins thrown away. If you would insure healthy action of the bowels, eat coarse food.

**Second.** One of the best aids to healthy and regular action of the bowels is the use of soft water. Hard water is objectionable, soft water is very desirable. Wherever, therefore, you may be, if you can get soft water to drink, by all means use it.

**Third.** Wash your body over as often as as two or three times a week. This of itself helps very materially to keep the bowels in a healthy state.

**Fourth.** Taking at evening once a week a sitz bath in water at a temperature of 85° to 90°, and sitting in it twenty minutes, rubbing the howels well with the hand while thus situated, has a direct tendency to promote action of the bowels.

**Fifth.** Having a particular time in the morning, say immediately after breakfast, when you will retire and relieve the bowels of their contents, is of great service, especially so if during the day you are to be confined to your room in study, or occupying a sitting posture. Where one is upon his feet, walking about or working, the period of seeking to relieve the bowels at stool may be left to his own instinctive impression. But where one is sitting down, the posture itself is unfavorable for organic sensibility of the bowels to show itself, and thus to neglect to be regular, is to induce constipation.

Of diseases which render their subjects incompetent for physical or continuous severe intellectual labor, there is none that is more to be dreaded nor any which produces more deplorable effects, than habitual costiveness. I say this because, in my experience among sick folks, I scarcely ever find a person who suffers from severe diseases who is not a sufferer from disordered bowels.

Were I to describe the various ailments, ending in sickness and death, to which persons living in America are more particularly liable, and from which they suffer immensely, it would be difficult for me to enumerate them without counting in as one of the predisposing or provoking causes of their existence, inactive bowels. If, therefore, you do not wish to be sick, be sure that you care for yourself, in this direction, and allow no day to go by without having the howels thoroughly emptied.

In that way you may not only promote your health and strength, but save yourself from severe diseases.—*Lancet of Life.*

## Bed and Bedding for the Sick.

If a bed is higher than a sofa, the patient often prefers not to get out at all, rather than to undergo the fatigue of getting out. If the bed was a low one, he might often feel like taking a few minutes' exercise every day in other rooms, or even in the open air. It is so very odd that people never think of this, or of how many more times a patient who is in bed for 24 hours is obliged to get in and out of bed than they are who only get into bed and out of bed perhaps once during the 24 hours.

A patient's bed should always be in the lightest spot in the room, and he should be able to see out of a window. It is scarcely necessary to say that the old four-post bedstead, with curtains, is utterly inadmissible, whether for the sick or well. Hospital bedsteads are in many respects very much better than private ones.

There is reason to believe that not a few of the cases apparently resembling scrofula among children proceed from the habit of sleeping with the head under the bed-clothes, and so inhaling air already breathed, which is further contaminated by exhalations from the skin. Patients are sometimes given to a similar habit, and it often happens that the bed-clothes are so disposed that the patient must necessarily breathe air more or less poisoned by exhalations from the skin. A good nurse will be careful to attend to this. It is an important part, so to speak, of ventilation.

It may be worth while to remark that where there is any danger of bed-sores, blankets should never be placed under the patient. It retains damp, and acts like a poultice.

Never use anything but light blankets as bed covering for the sick. The heavy cotton and impervious counterpane is bad, for the very reason that it keeps in the emanations from the sick person, while the blanket allows them to pass through. Weak patients are invariably distressed by a great weight of bed clothes, which often prevents their getting any sound sleep whatever.

One word about pillows. Every weak patient, be his illness what it may, suffers more or less from difficulty in breathing. To take the weight of the body off the poor chest, which at best is hardly up to its work, ought, therefore, to be the object of the nurse in arranging his pillows. Now what does she do and what are the consequences? She piles the pillows one upon the other like a wall of bricks, the head is thrown upon the chest, and the shoulders are pushed forward, so as not to allow the lungs room to expand. The pillows, in fact, lean upon the patient, not the patient upon the pillows. It is impossible to give a rule for this, because it must vary with the figure of the patient.

Tall patients suffer much more than short ones, because of the drag of the long limbs upon the waist. But the object is to support, with the pillows, the back below the breathing apparatus and above the hips, so as to allow the shoulders room to fall back, and to support the head, without throwing it forward. The suffering of exhausted patients is greatly increased by neglect of these points. And many an invalid, too weak to drag about the pillow himself, slips his book or anything at hand behind the lower part of his back to support it.—*Boston Journal of Chemistry.*

**Too LITTLE SLEEP.**—Students, as a class, do not sleep enough. There is no law so fundamental and imperative on the student as the law which requires him to sleep, and no other law does he so systematically and recklessly ignore.

It is a popularly accepted fallacy that students and literary men do not require as much sleep as mechanics and laborers. Physiology shows us that, during the operation of the intellect, rapid changes of tissue take place, and that a few hours of close application to thought and study exhaust the system more than two or three times the same period devoted to manual labor. It is evident, then, in order to compensate for this greater waste of tissue, that the brain worker will require more sleep than the muscle worker.

In the violation of this first great hygienic commandment is found the secret of most of the special diseases to which the student is liable. To this cause can be traced the eye affections that are so common. By neglecting to obtain sufficient rest, the system becomes relaxed and its tone lowered, thereby inviting disease, of which these organs, being especially over-taxed and weakened, are the first to become sensible.



# Scientific Press.

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San Francisco:

Saturday Morning, Dec. 9, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Dec. 6, 1871.—Legal Tenders buying 91; selling, 91½. Gold in New York today, 109½.

## Table of Contents.

Academy of Sciences; Wonders of the Microscope—III.; Our Mining Prospects; Mechanic's Institute; Relief Hill Gravel Mines.....353  
MECHANICAL PROGRESS.—Audacity in Invention; Iron Steamboat Building on the Mississippi; Chapin's Transparent Waterproof Varnish; Induration of Wood.....354  
SCIENTIFIC PROGRESS.—Are Men to Fly; Another Grand Scientific Project; Frost Work Imitated.....354  
CORRESPONDENCE.—Argenta, Blue Wing and Vipona Districts, M. T.; From County to County—Placer; San Diego Mines; Aveling & Porter's Road and Farm Engine.....355  
MINING SUMMARY.—Stock & Exchange Board; Market Report.....356-7  
On the Assay of Gold; Improved Corn Husker. III.....358  
USEFUL INFORMATION.—Artificial Leather; Linseed Oil; Value of American Patents in Europe; etc.....359  
GOOD HEALTH.—Importance of Healthy Action of the Bowels; Bed and Bedding for the Sick; Too Little Sleep.....359  
Hints to Miners; Our Home Industries; Meeting of the American Institute of Mining Engineers.....360  
Freezing of Nitro-Glycerine Powders; Alabaster Cave—III.; New System of Cheap Transport for Side or Tributary Railway Lines; Patents and Inventions.....361  
DOMESTIC ECONOMY.—Kitchen Aids; Filters and Filtering; Mutton the Best Meat; Mechanical Hints; etc.....362

## Notices to Correspondents.

THE CAR-BUILDER.—We have examined Rowell's "American Newspaper Book," but have not been able to find the "car-builder." As it is not arranged alphabetically, however, it may have been overlooked.

MR. H. B. GROZE has sent us the result of an assay of some of the Utah tin ore; but as we have already noticed that the ore contains no tin, we do not publish it.

## Mining Accidents.

JAMES PETERS, a native of Cornwall, aged 26, was instantly killed by a cave in the Empire mine at Grass Valley on Dec. 1st.

MYLES FINLAN, a miner in the Hale & Norcross, Virginia City, was severely injured a few days since, by a rock falling upon him.

JOHN CASSILL, a native of County Wicklow, Ireland, aged 38, was killed last week, by the explosion of a blast, in the Oregon mine at Reese River.

A miner, named Germaine Faure, was seriously injured recently, by the falling of a mass of earth, in the Minnesota mine, Idaho.

TWO men named Greer and Moore, while engaged in erecting a Stetefeldt furnace, in the Troy District, White Pine, on the 29th ult., were precipitated to the ground by the breaking of the scaffolding. Greer was instantly killed and Moore slightly injured.

OUR attention has been called to some recent experiments on the comparative efficiency of different kinds of boiler plates for steam generation which we will notice next week.

## HINTS TO MINERS.—NO. 2.

Most of the California miners are familiar more or less with placer mines, but many perhaps know but little as to the causes of the formation of these superficial deposits which are so numerous over the whole State. Mr. Raymond says: "These are always of comparatively recent geological formation. The deposits of debris are accumulations of mineral detached from its original localities by disintegrating influences, and conveyed, generally by water, to a new position. They contain therefore a great variety of material. Sometimes these deposits are simply disintegrated—not washed away. They are then to be recognized by their freedom from water-worn particles, sand, etc., their general homogeneous composition, and their position in places where there are otherwise no signs of alluvial action.

The most frequent deposits, however, have been accumulated by currents of water. The lighter minerals have been washed away, including all those ores, which, by chemical decomposition, assumed forms of small specific gravity, or actually became soluble. Hence it is not common to find pyrites, silver ores, or carbonates, in placers, though the original deposits may have contained all these in great abundance. We find, on the other hand, principally gold, platinum, heavy tin ore, magnetic iron ore, specular iron and precious stones—all substances which combine high specific gravity with indifference to ordinary atmospheric agencies.

The process which such deposits have undergone may be called a natural dressing or mechanical concentration. As in artificial concentration, so in this case, the size and shape of particles has also an influence upon their deposition, as may be seen in the stratified arrangements of sand, gravel and boulders in any river bed. After such a deposit has accumulated, the passage through it of silicious or calciferous waters, together with the pressure of new accumulations above, may cement it together in a solid mass, so that it can only be extracted by blasting, as if it were solid rock.

"It is an interesting question whether gold accumulated in placers increases in the size of its particles. The idea has been scouted by some scientific writers, but there are strong indications that such a process actually takes place. The greater purity and size of nuggets, etc., found in placers, as compared with the veins from which they were formed, indicates an aggregation or inorganic growth, preceded by a chemical reaction, removing silver and baser metals. Genth, in 1859, concluded from the superiority of the alluvial gold of the Southern States, that the veins could not by their decomposition have furnished it; but Oscar Lieber had already put forward a bold theory of the alteration of the gold by solution, precipitation and agglomeration. At that time the chemical possibilities were not fully known. Prof. Bischoff, the eminent chemist and geologist, has since found that sulphide of gold is slightly soluble in pure water. It is now also known that chloride of gold will co-exist in very dilute solutions, with proto-salts of iron, provided there is present an alkaline carbonate and a large excess of carbonic acid."

"If the sulphide of gold is required in solutions, it is only necessary to charge the solution with an excess of sulphuretted hydrogen. In the same connections should be mentioned the discovery, from a different quarter, that metallic gold is soluble in solutions of the persalts of iron. It will be seen that these discoveries give a much larger range and greater probability of changes in the auriferous material once deposited in a vein.

But another and still more important series of experiments has been carried out by

Australian chemists, and corroborated, I believe, in France. The latest reported results of these inquiries are found in a paper on the formation of gold nuggets in the auriferous drifts, read before the "Royal Society of Victoria," by Mr. Cosmo Newberry. The arguments and facts contained in that paper strongly support the theory of the growth of nuggets, and furnish a simple analogy in the precipitation of metallic gold from solution, by the reducing action of organic matter, in the presence of a nucleus.

The nucleus itself may be gold or iron, copper or arsenical pyrites, galena, zinc-blende, or sulphide of antimony, etc.; and upon it the metallic gold collects in irregular grains, accumulating in mamillary, or even crystalline forms. This being the case in the experiments by which artificial nuggets and crystals of gold have been produced, we are led to believe a similar process possible in nature, especially since nuggets of drift gold, when weighed, show frequently a less specific gravity than belongs to the metal; and, when sawn in halves, display, in numerous instances, the oxidized remains of former nuclei.

## Our Home Industries.

One of the most important of the industrial enterprises which have been started in the State recently, is that of

The California Silk Manufacturing Co.

Their mill is located in South San Francisco, and the office and salesroom are at 569 Market street. Messrs. Brown & Peabody are the agents of the company, which is a joint stock concern, and has been in operation but a few months. The machinery at the manufactory is capable of turning out \$3,000 worth of silk per week, but at present it is only worked to a capacity of \$5,000 a month. Fifty hands are employed, forty of whom are young girls, the others being skilled workmen. Some of the girls have shown a remarkable aptitude in mastering the details of the business, and with a little more experience may be ranked as first class hands. Mr. James Leigh, the superintendent, has had many years experience in silk manufacturing, both in England and the Eastern States; and the machinery used in the establishment consists of the latest improved kinds. The silk used is from China and Japan, as well as California production. The company have used all the California silk they could procure, and have found it superior to the best Chinese and Japanese articles. They report the climate in this State well adapted to silk growing, and the California article is used by them, in making the finest grades of tram and organzine.

The great trouble California farmers have to contend with is, the difficulty of reeling silk from the cocoons; and we were informed that machines for reeling silk, if manufactured here, would have a ready sale, and be a great advantage to the silk growers. The silk manufactured at this establishment is a very fine article, meets with a ready sale, and has so far given satisfaction wherever used. All varieties of thrown silk are made, and the color of any sample can be matched in a few days in the dye house. Raw silk is at present worth from six to eight dollars per pound, according to quality. The starting of this enterprise has led to the establishment of a ribbon-weaving factory in this city; and other industries of a like nature would no doubt spring up, if a sufficient amount of silk was manufactured.

## The Golden State Iron Works.

These works have completed a furnace and condensers for the Phoenix Quick-silver Mining Company, in Pope Valley, Napa county; also the same articles for the Valley Mining Company, in the same locality. They are also making an engine, boiler and furnace irons for the Phoenix Silver Mining Company, of Nevada. They

are constructing a 15-stamp mill and Stevenson pans for the Metropolitan Mill and Mining Company, at Eureka, and are building Horn pans for the Original Hidden Treasure Company, at White Pine. They are also making a mill for the St. Patrick mine, at Newcastle, and hoisting works for the Oakland Paving Company. Shoes and dies are being turned out for quartz mills in Washoe, and distributing machinery for the Ellsworth Mill and Mining Company, at Ellsworth, Nevada. Mining cars are also being built for the Amador mine, Amador county.

## Eureka Foundry.

This establishment is engaged upon work for different gas works, including those of Los Angeles, Oakland and Petaluma. The foundry is likewise running on castings for outside machine shops.

## Meeting of the American Institute of Mining Engineers.

The third and a very successful meeting of the Institute of Mining Engineers has just been held at Troy, N. Y. The members were hospitably received by the citizens, and an address of welcome was given by the Mayor. The principal iron works and furnaces in that vicinity, and at Albany, were thrown open to the inspection of the members; and upon the invitation of the Port Henry Iron Company, they visited the celebrated iron mines at Moriah, in Essex County. The Bessemer steel works of the Messrs. Griswold; the new anthracite-burning iron furnaces below Albany and the extensive furnaces and rolling mills of the Messrs. Burden were visited in succession.

The sessions for the transaction of business, and the reading of papers, were held in the evenings in the Common Council Chamber, and were well attended by the members and others specially interested in the manufacture of iron and of steel. Most of the communications related to these industries, but there was one very valuable paper by Mr. Eilers (the assistant of Commissioner Raymond in the collection of mineral statistics), upon the Metallurgy of Lead and Silver in Utah and Nevada. Among other papers were the following: Manufacture of Bessemer steel, by Prof. Drowne; Late Improvements in Blast Furnaces, by Prof. Egleston; Iron Manufacture in the Lehigh Valley, by David Thomas, the President of the Institute; Electricity and Mineral Veins, by Prof. Raymond; Efforts to make Iron in Blast Furnaces in Japan, by Prof. Blake; Iron Deposits of Essex County, by Prof. Maynard; Description of Krupp's Steel Works, by Prof. Egleston.

Some or all of these papers will be published in a volume at the end of the year and will be distributed to the members. The place of the next meeting in February was not fixed upon, several places having been proposed, but will soon be decided upon by the Council. Among the new members elected were several gentlemen actively engaged as mining engineers upon the Pacific Coast.

CIVIL ENGINEER'S POCKET-BOOK.—We have received a small, neatly-bound volume entitled the "Civil Engineer's Pocket-Book," by John C. Trautwine, C. E. Although containing, in a condensed and convenient form, much that is of use to professional engineers and the more advanced student in civil engineering, the elementary principles of geometry, arithmetic, algebra, surveying, natural philosophy, mechanical engineering, etc., are very fully given. Among the subjects discussed are the strength of iron and wooden pillars, with full tables; trusses for roofs and bridges; weights of bars, bolts, pipes, etc.; stone bridges, culverts and arches; hydraulics, hydrostatics, railroads, locomotives; leveling, surveying; tables cubes, square roots, cube roots; traverses, sines and tangents; broad measure, radii and curves, logarithms, level cuttings, etc. It contains tables and rules concerning almost every imaginable thing—all comprised in 650 pages of small type. Among other things is a convenient glossary of technical terms. The work is published by Claxton, Remson & Haffelfinger, 819 and 821 Market street, Philadelphia.



**Freezing of Nitro-Glycerine Powders.**

As the season is upon us when most difficulty is experienced in using nitro-glycerine in any and all its forms, in consequence of its freezing, a few words of explanation and caution may be of service to miners and others.

It seems to be a settled fact that miners, for some purposes, will use some of the strong fulminates now known to science, of which there are many. Most of these fulminates are made wholly or in part of nitro-glycerine; this is a fact published by their manufacturers. But the nitro-glycerine is combined with other materials, which change it from a liquid to a solid, and render it safe to transport, and as safe to use as any other explosives.

It is not generally known that nitro-glycerine, in whatever condition, freezes at 42° Fahr., whereas water freezes only at 32°, and these powders become as solid as ice.

This is no damage whatever to the powder; as, while it is in a frozen condition, there is no decomposition and no escape of gases. But while it is frozen it has but little explosive force, and it must be thawed out before using, or the effect of the blast will be lost.

Many accidents have happened while these powders were being thawed out, occasions, perhaps, by want of knowledge as to the manner in which it should be done.

These accidents have occurred by persons exposing the powder near to a fire, or by placing it in a vessel and holding it in direct contact with a hot fire.

Nitro-glycerine, when exposed to a heat of 360° Fahr., will explode. Now, when one or another of these powders are exposed to heat in this manner, in a frozen condition, that portion of it nearest the heat will commence thawing; as the process goes on and the heat increases, that which lies against the heated surface of the vessel is soon raised to 360°, and an explosion must follow; and as by this time considerable of the powder will have become thawed, the explosion is likely to be very violent.

Such carelessness has already caused the death of two or three persons, and the maiming of several others; among the former an estimable citizen of Nevada county. This thawing out, however, can be done safely, the only requisite being to guard against raising the heat to 360° F.

The best method to do this is to place the powder in a tin vessel, say a lard can, or if a larger quantity is needed, in a kerosene oil can,—any deep vessel that will not leak—and set this in another containing boiling water, when the powder will soon be fit for use. This is conveniently done as most of these powders used are put up in cartridges. It is easy to determine when it is thawed, as the cartridge will readily yield to pressure between the thumb and finger.

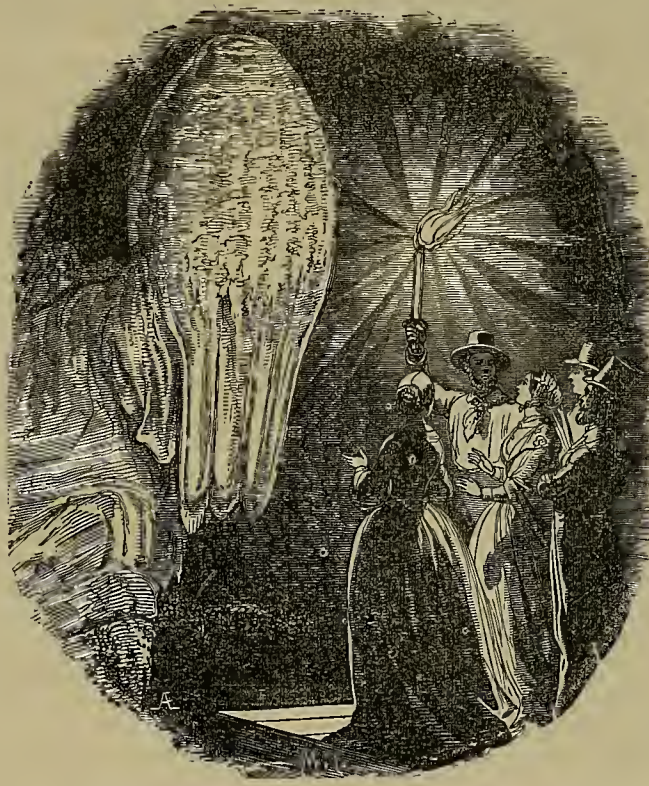
By following this simple practice the heat will not be raised above 212° F., and no accident can occur by thawing liquid nitro-glycerine, or when in the condition of Hercules or Giant powder.

**GILLET'S FEDERAL GOVERNMENT.**—We have received through A. L. Bancroft & Co., from Woolworth, Ainsworth & Co., publishers, a copy of Gillet's "Federal Government, its Officers and their Duties." This work will be found useful to those desiring a general knowledge of the affairs of the Government, and will enable the rising generation to understand the structure of our Government, what officers are employed in its practical operation, and their general duties. Such knowledge will be found useful to all, especially to the American citizen when giving direction to our public laws. The work is handsomely bound, and contains 444 pages. It was written by Ransom H. Gillet, formerly a member of Congress, and more recently Register and Solicitor of the United States Treasury Department, counselor at law, etc. We mentioned the receipt of a copy of this work from A. Roman & Co. last week.

**Alabaster Cave.**

Among the many natural wonders of California, which excite the admiration of strangers who visit our State, is the famous El Dorado county cave, which was discovered in 1860 by Mr. William Gwynn, whose workmen were engaged in quarrying stone to build a lime kiln. The cave or grotto is not of very great size, but its chief attraction consists in the beautiful shapes and colors of the alabaster, which form the sides and roof. When brilliantly lighted up with torches, a most magnificent scene is presented to the gaze of the visitor. In one portion of the cave, the alabaster has taken the form of a pulpit, as shown in the accompanying cut, taken from Hutching's "Scenes of Wonder and Curiosity in California."

Mr. Gwynn, in a letter to a friend, thus speaks of this natural curiosity: "On our first entrance, we descended about 15 feet to the centre of the room, which is 100 by 30 feet. At the north end there is a magnificent pulpit, in the Episcopal Church style. It is completed with beautiful



THE PULPIT, IN THE ALABASTER CAVE.

drapery of alabaster stalactites, of all colors, varying from white to pink red; which overhang the beholder. Immediately under the pulpit is a lake of water, extending an unknown distance. On arriving at the centre of the first room, we saw an entrance to an inner chamber still more splendid, 200 by 100 feet, with the most beautiful alabaster overhanging us in every possible shape." Several apartments were discovered and named, respectively, Crystal Chapel, Dungeon of Enchantment, Julia Bower, and Picture Gallery.

**Recent Mining Discoveries.**

A rich gold-bearing quartz ledge has been discovered near the Eliza mine in Siskiyou county.

The discovery of rich placer mines on Rouge River, Oregon, 8 miles from Slate Creek, is announced.

A quartz ledge, that promises to be valuable has been found on Rock Creek, Nevada county.

INVENTORS will hereafter find Mr. J. M. Stockman, a pioneer model and pattern maker of this city, at the northwest corner of Natoma and Fremont streets, over W. T. Garratt's Brass Foundry, where he has every facility for turning out to advantage all work in his line.

**A New System of Cheap Transport for Side or Tributary Railway Lines.**

We have received a small pamphlet published by William B. Hyde, C. E. of this city, having the above title, in which the various systems of railroad transportation are reviewed. The author is the inventor of an improvement in the construction of cheap railway lines, and the intention of the pamphlet is to give to railroad men and capitalists a few facts and figures which will lead them to the same conclusion that induced the author to undertake the introduction of a new and improved system.

The inventor speaking of his improved plan says:

We require a railway which shall be able to sustain loaded freight cars from the parent road, at speeds of 5 to 6 miles an hour, and a special class of very light passenger cars, at speeds of 10 or 12 miles an hour, and a locomotive power so disposed as to haul the above without demanding a 45, 50 or 60 lb. rail for its service.

To accomplish this end I propose that very slight roadways be built as near the surface of the ground as possible within grades of 200 feet per mile, and with a superstructure of ties of 2½ in. x 8 in.,

usual length, surmounted by longitudinal rail stringers of straight Oregon pine or other good wood of 3½ in. x 6 in. deep, surmounted by a good strap iron, with ends spliced with an underneath fish-bar let into the surface of the wooden under-rail and bolted entirely through the same. Or a 10-lb., 15-lb. or 20-lb. iron T rail. With such a rail, the work which I have enumerated above, can be easily and safely done. Between the rails I construct a strip of flat roadway 18 or 20 inches wide at top, and which is about flush with the plane of the side rails. This strip to be manufactured of any material cheapest to the country in which the same may lie, be it stone or wood, asphaltum or McAdam. Upon this center strip of roadway will operate a broad elastic tire traction wheel, having just sufficient weight of the engine resting upon it to utilize every pound of steam that the cylinders receive from the boiler, permitting the remaining weight of locomotive to be so distributed by truck wheels as to bear upon the track very lightly and afford guidance to the locomotive. I make the center strip of equal heights with the side rails, so that at all junctions or switches the traction wheel can traverse without obstruction, from one track to another.

Mr. Hyde has procured Letters Patent for the above improvements in the construction of railway lines through the Scientific Press Patent Agency.

EDUCATION is a better safeguard of liberty than a standing army.

**PATENTS & INVENTIONS.****Full List of U. S. Patents Issued to Pacific Coast Inventors.**

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

**FOR THE WEEK ENDING NOVEMBER 21.**

EARTH-CLOSET.—Robert R. Strain, San Francisco, Cal.

SCHOOL DESK AND SEAT.—Wiley Watson, Visalia, Cal.

TWEER.—Alfred M. Worthing, Reno, Nev.

NOTE.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible by telegraph or otherwise at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

**Notices of Recent Patents.**

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

TWEER.—A. M. Worthing, Reno, Nev. The object of this invention is to provide an improved tweezer for blacksmiths and other forges, and it consists of a box into which the blast is driven, and from which it is delivered upon the fire through slots in the top of the box. The amount of air supplied to the fire is regulated by slides, which close the blast openings to a greater or less degree. In order to keep the whole apparatus cool, a water pipe is carried alternately through between the blast openings, and this prevents undue heating, and also keeps cinders from adhering to the fire surface.

IMPROVEMENT IN EARTH CLOSETS.—Robt. R. Strain, San Francisco, Cal. This improvement in earth closets relates to that part by which the earth is automatically taken from the hopper and deposited in the vessel below the seat; and it consists of a sliding frame or box, which is caused to move back and forward and receive a charge of earth from the hopper when the seat is pressed down by the weight of the occupant, and when the weight is removed the mechanism causes the box to be carried forward and deposit its contents in the vessel beneath the seat.

This seems to be a very complete, ingenious, as well as useful invention.

FARM GATE.—David Creighton, Vacaville, Solano county, Cal. This invention relates to certain improvements in automatic farm gates of that class which have one stationary and one movable pintle or hinge; and it consists in the employment of a double lever at each side of the gate, having one long and one short arm, and so connected with the operating arms and the bails in the road bed, that the long arm of one lever serves to open the gate to an approaching team, while the short arm of the other lever closes the gate after the team has passed. This is done by alternately moving the pintle at the bottom out of line, so that the gate will swing in one direction or the other, as the case may be. After having opened the gate, neither arm of the lever so doing can again move the gate till it has been closed by the other lever.

A DISTINCTION.—There are two authors of works on mining by the name of Phillips; and as the newspaper writings and reports of J. S. Phillips, of San Francisco, have been sometimes quoted as if written by J. A. Phillips, of London, it is but justice to both, and fair to the former, who is the writer of the "Explorers', Miners' and Metallurgists' Companion," the especially practical book, advertised in another column, that this should be remembered by our practical readers, for whom it has been expressly written.

WE HAVE received from Johnson & Co., No. 37 Sutter street, a little book entitled "Every Horse Owner's Training Manual, and Horseman's Guide," containing full and complete instructions in breeding, breaking, training, and educating the trotting horse, by C. Granville Johnston, among other things, it contains the new rules and regulation adopted by the National American Turf Congress.



# DOMESTIC ECONOMY.

## Kitchen Aids.

Mrs. M. E. Wager, talks as follows about the aids which every housewife should have to simply lighten her toils in the kitchen, which, when considered singly, appear insignificant; but which, in the aggregate, are so wearisome:—You are to make cakes or puddings, frostings or custards, and in heating and whipping your eggs you spend much time as well as strength. Here is a simple little affair—a wheel and a crank and some long loops of wires, which you can screw on the side of the shelf or table or hold over your bowl of eggs, by which you can heat your eggs to a perfect froth in one or two minutes, and with the utmost ease. The machine is called "The Egg Beater," and costs from seventy-five cents to a dollar.

You want to make toast for breakfast or tea, hurn your face and your hands, are a long time doing it, and find it such a bother that toast does not come on the table often. You can get a long handled toasting fork for fifteen cents, but a better affair for from twenty-five cents to two dollars and a half, according to size. This is made of wire, like a pair of hook covers, which opens. You lay in your slice of bread, rake out a bed of coals, hold it over them by its long handle and toast your bread on both sides, evenly and easily.

Here is a beef steak pounder for fifty cents. It is of cast iron, hatchet-like, with the bottom of the hammer checked with points, while the sharp edge of the hatchet will divide the meat as you like.

A housewife always has silks, yarn, worsteds or floss, which she knows will get in a tangle unless she winds it into a ball, or on a spool. A pair of chair hacks are often brought into requisition, or a child's arms made tired, if a man is not around to be utilized. Here is a little pair of swifts, opening and shutting like an umbrella, so that you can adjust them to any circumference you like. There is a screw to fasten it on the side of your work table and, when done using it, it folds up in a small compass, and is as much of an improvement upon the old fashioned swifts, that have such a dreadfully prosaic look, as a stove is an improvement upon a fireplace for cooking purposes. This "convenience" costs a dollar and twenty-five cents.

There is a pudding to be boiled for dinner, and the bag in which it is to be cooked is mislaid, or, if used, perhaps rips or tears, or gets untied, or burns on the bottom, and you hurn your fingers getting it out of the sack, as well as making a great muss when putting in the batter, or whatever is used; so that a boiled pudding is usually a dish seasoned with worryment and trouble. Let us show you this pudding boiler. It is of planished tin, melon-shaped, only the bottom is flat and fits in like a cover. You can pour your ingredients in this dish, put on the cover, boil until done, take off the cover and eat out your pudding on a platter, not only unburned but beautifully moulded. These are of various sizes, and cost from one to two dollars. Here is another style, a fluted, truncated, cone-shaped, with a tunnel rising through the center, insuring quicker boiling, and preventing rawness and heaviness in the middle, and is excellent for large puddings. This style of boiler ranges in price from a dollar and a quarter to two dollars and a half. You can have them in different designs, so that the pudding turns out with a mould of flowers, a sheaf of wheat, or ears of corn on the top. It is very nice, too, for moulding corn starch, or jellies, if you do not prefer the small separate moulds with beautiful designs, which vary in price from three to six dollars per dozen. It is one of the essentials of good cooking to have food look inviting. Anything that looks good and tastes good conveys a double enjoyment. It is like having your *vis a vis* at table, both handsome and agreeable.

Here is a saucepan for cooking milk, or rice, or mushes, which is so constructed as to prevent burning. It is simple, made of tin, and varies in price as in size, from seventy-five cents to three dollars.

In the summer time when farmers like something to drink more substantial than water, not the abominable stuff that comes from a bar-room, but a melange of ingredients, such as eggs, or milk, or jelly, or whatever may come under a temperate rendering of "nog," we have here a dish to make it in. It is of tin, tubular in shape, with the inside lined with sharp tin points. After putting in the ingredients and placing on the cover, a little vigorous shaking

amalgamates the mass beautifully. This "egg nog machine" costs thirty cents. So much for this time. Any contrivances or inventions our readers enjoy, pertaining to the domestic kingdom, we are anxious to have them tell us about. Why do not women develop into inventors?

## Filters and Filtering.

Water, wine, spirit, jelly, syrup, tinctures, and a great variety of other fluids, hot and cold, often contain substances which should be separated, in order to render the fluid clear and bright. As regards water filtering, it has become pretty general; but in domestic life there are fluids, such as wine, liquid jelly, syrup, etc., which are required to be made "clear" before they are put on the table. There are three kinds of filters—sponge for watery liquids, cotton for spirituous fluids, and wool for gelatinous fluids and oils.

In every well-appointed kitchen, there are tin or porcelain funnels. For filtering watery fluids it is only necessary to insert, in the choke of the funnel, a V shaped piece of fine sponge. All such liquids, on being put into the funnel, will pass through the sponge, and become quite clear. When this effect ceases, the sponge must be removed, and well elauded. Vicious fluids are best cleared by filtering through a cone of white blotting paper, shaped by folding a square piece of the paper from corner to corner, then folding the triangle into half its size, and opening the folds; it will fit any funnel, which will act as a support to the paper. Wines, etc., poured into this, will run through perfectly bright. In some cases where the wine is only a little thick from lees, cork, or other mechanically suspended substance, it can be made quite clear by filtering through a wad of white cotton put in the choke of the funnel; and when this answers, it is much quicker than the paper filter.

For jelly and oil, wool alone is the proper medium for filtering. The felted wool jelly bag is pretty well known as the heat means of clearing calves' foot jelly, and it also answers for olive and other oil. These bags are, however, too expensive to be generally used; hence they are rarely seen in kitchens. A good substitute for the wool bag is a colander, on the inside of which a new flannel lining, should be fitted, made of double stuff. A wad of white knitting wool, put in the choke of a funnel, will do to filter any small portion of such fluids. Many a good glass of port wine has been wasted for the want of a penny paper filter.—*Am. Manufacturer.*

## Mutton the Best Meat.

A great many tillers of the soil drag out miserable days, simply because they will persist in eating salt pork, hams and shoulders in spring and summer, when a dish of good mutton would give them new life and strength. We mean to repeat a thousand times, or at least till what we say has some effect upon our countrymen, that a pound of lean, tender, juicy mutton can be produced for half the cost of the same quantity of fat pork; that it is infinitely healthier food, especially in the summer season; and that those who eat it become more muscular, and can do more work with greater ease to themselves, than those who eat fat pork. We know nothing more delicious than smoked mutton hams of Southdown breed of sheep. Venison itself is not superior. By smoking a portion of the flesh of a sheep most families can dispose of the four quarters in an economical manner before any part of it would spoil.

**TO KEEP TOMATOES FOR WINTER USE.**—A correspondent sends the *Rural New Yorker* the following: As the tomato season is now here, I can contribute one way for keeping them for winter use that may be new to some of your readers. I ate them in February, sliced and seasoned with sugar and a little vinegar, that seemed every way as nice as tomatoes fresh picked from the vines. They were preserved in the following manner: Dissolve a teacup of salt in a gallon of water. Pick ripe tomatoes, but not over ripe, leaving little of the stem on. The tomatoes must be well covered with the brine, and they will keep till spring or over.

**TO TEST EGGS.**—The following comes from a housewife; of course in itself it is nothing new: Put the tip of your tongue to the broad end. This end is always warm, compared with the pointed end. If it feels cold, the egg is unmistakably bad.

If your potatoes are watery, put a piece of lime about as large as a hen's egg in the pot, and boil with them, and they will come out as mealy as you please. So says an exchange.

## Mechanical Hints.

**A WATER-PROOF CEMENT OR VARNISH.**—The Chinese make many kinds of water-proof varnishes, one of which is compounded as follows:—To three parts of fresh, beaten dehydrated blood and four parts of slacked lime, add a little alum, and you have a thin, sticking mass which is immediately ready for use. If applied to any ordinary wooden box or even to a common straw basket two or three times, the box or basket will be perfectly water and oil tight. A pasteboard box served with this preparation assumes the consistency of board and becomes water and oil tight. If this preparation is impervious to kerosene, its value would be very great. An experiment in that direction by coating the inside of casks might lead to important results.

**TESTING LUBRICATING OILS.**—Some ingenious inventor has contrived an apparatus to test the relative merit of lubricating oils. The point is decided by an indicator that registers the different degrees of heat produced by the action of the machinery during the test, the heat revealing the relative amount of friction, decides the merit of the lubricator used. The invention is to be patented.

It frequently happens that painters splash plate or other glass windows when they are painting the sills. Soda melted in very hot water and applied with a soft flannel will entirely remove the paint.

**VERY HARD CEMENT.**—Some repairs being required to the stone steps leading to a garden, a French mason used Portland cement mixed with finely divided cast and wrought-iron filings, and broken up horings, instead of with sand. The result has been that the mass has become so hard as not to admit of being broken either with hammer or pickaxe.

**WIRE ROPE** is more than twice the strength of hemp rope of the same circumference. Splicing a rope is supposed to weaken it one-eighth.

## Want of Decision.

A great deal of talent is lost to the world for the want of a little courage. Every day sends to their graves a number of obscure men, who have only remained in obscurity because their timidity has prevented them from making a first effort, and who, if they only had been induced to begin, would, in all probability, have gone great lengths in the career of fame. The fact is, that, in doing, we must not stand shivering on the bank, thinking of the cold and the danger, but jump in and scramble through as well as we can. It will not do to be perpetually calculating risks and adjusting chances; it did very well before the flood, when a man could consult his friends upon an intended publication for a hundred and fifty years, and live to see its success for six or seven centuries afterward; but at present a man doubts, and waits on his brothers, and his uncles, and his particular friends, till one day he finds that he is sixty-five years of age, that he has lost so much time in consulting first cousins and particular friends that he has no time to follow their advice. There is so little time for over-squeamishness at present that the opportunity slips away. The very period of life at which man chooses to venture, if ever, is so confined, that it is no hard rule to preach up the necessity, in such instances, of a little violence done to the feelings, and efforts made in defiance of strict and sober calculation.—*Sidney Smith.*

**A BEAUTIFUL THOUGHT.**—When engineers would hridge as steam they often carry over at first but a single thread. With that they stretch a wire across. Then strand is added to strand, until a foundation is laid for planks, and now the hold engineer finds safe footway and walks from side to side. So God takes from us some golden-threaded pleasure, and stretches it hence into Heaven. Then he takes a child, and then a friend. Thus he bridges death, and teaches the thoughts of the most timid to find their way hither and thither between the two epheres.

**LABOR.**—It is to labor, and labor only that man owes everything possessed of exchangeable value. Labor is the talisman that has raised him from the condition of the savage; that has changed the desert and the forest into cultivated fields; that has covered the earth with cities, and ocean with ships; that has given us plenty, comfort and elegance, instead of want, misery, and barbarism.

WE must stand or fall by our own actions.

## AUCTION SALE.

We will sell at public Auction, to the highest bidder for U. S. gold coin, on THURSDAY, December 28th, 1871 at W. A. Holcombe & Co.'s warehouse, the following described goods, to pay storage and advances, unless the charges are previously paid. Sale to commence at 12 m.:

Description.	Name.	Charges.
1 case.	R. Carpenter.	\$14 50
1 chest.	Do.	17 00
5 cases wire.	W. N. O.	23 00
1 bd sack.	Jacoby Roberts.	22 00
14 pgs furniture.	Smith & Smith.	45 45
1 bundle, 1 bedstead.	Francisco Garcia.	24 50
1 case.	A. H. Mow.	18 25
1 pgs frames, 1 ssab.	Marinette.	25 00
1 barrel.	A. B.	25 50
2 pkgs ore.	O. Phelps.	24 50
1 case.	H. Winfield.	26 50
1 keg.	Oeo. Landage.	27 00
1 case acid, 1 case.	S. D. Field.	31 50
1 marble slab.	Oodwin & Co.	27 25
435 quartz, 1 case.	C. Boman.	31 85
1 veloched.	Marinette.	30 10
1 sign, 2 cot beds.	A. Waldman.	27 40
1 trunk.	Mrs. Terry.	27 50
2 cases.	R. O. O.	27 75
1 bale.	Miss Silvers.	31 00
15 coils wire.	S. H. Hild.	55 75
1 sulky.	Oeo. W. Wells.	41 25
1 case.	Sam Lee.	29 75
1 case mdso.	C. O. Wecall.	30 50
1 chest.	Mar. Aret Terry.	31 85
1 case.	W. M. Seaby.	30 60
1/2 cask, 1 barrel, 1 case.	F. S.	10 35
1 case.	C. S. B.	30 50
6 pumps, 1 pk handles, 4 pg iron, O. M. Ganch.		61 25
1 case.	C. C. Hanson.	52 50
1 chest, 2 pieces pipe.	B. McOee.	31 00
1 case.	A. O. Wecall.	37 50
1/2 cask.	Oeo. Spect.	34 25
1 box.	Douglas & Co.	34 00
1 case.	S. Goldman.	35 25
1 box.	C. O. Hanna.	36 60
1 case.	R. W.	35 50
1 coil chain.	J. Moody.	35 50
10 1/2 barrels.	A. M.	57 00
Lot of iron shafting, etc.	J. A. Wall.	69 00
1 case.	A. Wall.	36 00
1 stove, 1 boiler, 1 bd. pots, 1st. pan, David Ruggles.		56 00
1 case.	C. E. Hensch.	28 50
5 cases, 1 trunk, 1 chest.	F. C. Warren.	35 00
1 case.	W. Terry.	22 00
1 chest.	W. F.	12 00
1 chest.	C. W. Worden.	16 00
1 trunk, 1 case.	E. R. Campbell.	63 10
1 trunk, 1 bd Bedding.	Mrs. Leley.	15 00
1 case.	No Mark.	12 00
2 pkgs bedstead, 1 bundle.	Mrs. Bowers.	15 00
1 show case.	J. A. Mahew.	33 00
1 barrel.	O. Glass.	34 00
1 case.	No Mark.	51 00

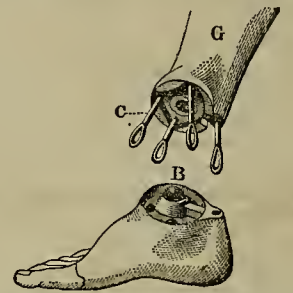
COBB, JONES & CO., Auctioneers.  
San Francisco, Nov. 25th, 1871. n-25-5w.

## MENZO SPRING,

Manufacturer of Dr. Douglas Bly's

## Patent Artificial Limbs,

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All other kinds changed and repaired. The late improvements on the Dr. Bly Limbs, especially his two best Legs (one with the other without lateral motion at the ankle joint), make them far superior to all other Artificial Legs in use. (See illustration of Anatomical Leg, No. 8, present volume).

For particulars call or send for circular. Circulars sent free. Address MENZO SPRING, 117-23-sa 101 Jessie street, San Francisco, Cal.

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## Worcestershire Sauce.



Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name of "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper. Wholesale and for export by the Proprietors, Worcester: Cross and Blackwell, London, &c. &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-1yew

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Patent Office Models made with neatness and dispatch at Reasonable Rates. 247 Fourth street, San Francisco. 18v23-tf

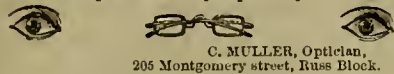


## Business Cards.

J. ROSS BROWNE,  
Office, No. 45 Montgomery Block,  
SAN FRANCISCO, CAL.

E. J. FRASER, M. D.,  
SURGEON,  
No. 102 Stockton Street, San Francisco, Cal.

Spectacles My Specialty.



C. MULLER, Optician,  
205 Montgomery street, Russ Block.

JOHN ROACH, Optician,  
Has removed from 322 Montgomery street to  
540 Washington street,  
East of Montgomery,  
Surveying Instruments made, repaired and adjusted  
22-17-3m

Farmers and Mechanics  
**BANK OF SAVINGS,**  
No. 295 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.  
H. DUTTON, President.  
OEO. M. CONDER Cashier. 19-16-3m

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**CORDAGE COMPANY.**

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Line constantly on hand. Mining Ropes of any size  
and length manufactured to order.  
TUBBS & CO., Agents,  
611 and 613 Front street.

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**HOBBS, GILMORE & CO.,**  
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STEEL PENS.  
Sold by all Dealers throughout the World.

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Stair Builder, Wood Turner, and  
SCROLL SAWYER,  
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E. N. VAN BRUNT.....Cashier.

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25-20-qy

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San Francisco, Cal.

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FREE, and to any part of the city at reasonable rates.  
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Proprietors.  
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TO CONTRACTORS, MINERS, ETC.



By this invention, one man, with one horse and five  
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Highly Approved by all who Use Them.

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Manufacturers of the latest Improved WOOD-WORKING  
MACHINERY for Planing Mills, Car Shops, Agricultural  
Implement, Furniture, Sash, Blind, and Door Fac-  
tories, etc., etc. Send for Illustrated Catalogue and Price  
List.  
RICHARD BALL. E. P. HALSTEAD.  
m4-cowly

## SELF-OILERS.

**WATERS' SELF-OILERS.**

PATENTED October 21, 1862;  
July 6, 1867; July 23 and Sept.  
22, 1868, and June 20, 1869.  
Glass reservoir, with white  
metal coupling cast on.  
Substantial brass stem, with  
graduating plug—V slot on  
one side, as shown in magni-  
fied cut—in the top.  
The best and cheapest  
OILER in the market; perfect  
lubrication on loose pulleys and all kinds of bearings.  
Any kind of Oil in any kind of weather. Price, \$4.50  
per dozen. Liberal discount to agents and to the trade.  
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**Phoenixville Bridge Works**

OF PENNSYLVANIA.

**CLARKE, REEVES & CO.,**  
ENGINEERS AND BUILDERS.

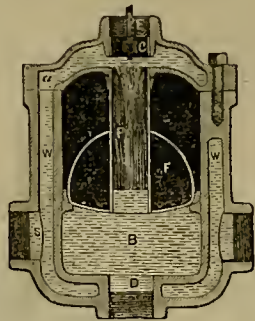
NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of  
Railway Companies, and Engineers having charge of  
New Bridge Constructions, to their new

Album of Designs,

showing various styles of New Railroad Bridges, Via-  
ducts, etc., which they have either constructed or are  
prepared to construct. A copy will be mailed on appli-  
cation to our address, No. 410 Walnut Street, Phila-  
delphia, ap8-ly

**CRAIG & BREVOORT'S**  
Patent Condenser for Steam  
PUMPS, &c.

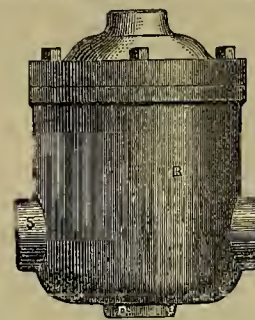


NO. 1.

The annexed drawing represents a Condenser in-  
tended to be attached to the ordinary steam pump,  
thereby bringing it within the class of low pressure,  
or more properly speaking, of condensing engines; the  
steam, when it has done its work in the cylinder, in-  
stead of being exhausted into the atmosphere, is con-  
ducted to the condenser, on its entry into which, it  
meets the water drawn by the pump, and is immedi-  
ately condensed.

The Cut No. 1 represents a vertical section of the  
Condenser, and No. 2 an elevation.  
The flange D is bolted to the suction orifice of the  
pump, and the flange S to the pipe leading to the well,  
or whatever source of supply the pump may have; W is  
a water jacket surrounding the main chamber of the  
condenser, B, and with which the suction pipe, S, com-  
municates, permitting a free circulation of water within  
the jacket and into the hollow cover or top through the  
series of openings, one of which is shown at A, and  
from thence into the body of Condenser, B, through  
pipe P, carried by float F; the pipe P also acts autom-  
atically as a valve to enlarge or contract the space  
through which the water enters it, by which means the  
possibility of the condenser being at any time flooded is  
avoided. The pipe P, it will be observed, also acts as a  
guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or  
lowered by means of screwed stem—shown coming  
through elbow in Cut No. 2—is for the purpose of in-  
creasing or decreasing the flow of water according to  
the capacity of the pump to which it is attached.



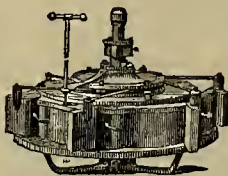
NO. 2.

The exhaust pipe from steam cylinder is screwed into  
cover at E; the exhaust steam is thus thrown directly  
into contact with the water entering the condenser on  
its way to water cylinder of pump through D. A  
vacuum being of course immediately formed, acts on  
the exhaust side of the steam piston, aiding it in its  
work. If at any time it is desirable to run the pump  
without the condenser, it is only necessary to turn the  
three-way cock, which is placed in the exhaust pipe,  
into such a position as to cause the steam cylinder to  
exhaust into the atmosphere; when this is done the  
pump is perfectly free from the condenser, and acts as  
if it were not attached. This condenser is especially  
useful for pumps running in mines, or any other po-  
sition where trouble is experienced in getting rid of the  
exhaust steam. Address: H. L. BREVOORT,  
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trance on Natoma street. 6v23-3m

## Travelers' Guide.

## CENTRAL PACIFIC RAILROAD.

## OVERLAND TRAINS.

Express	Express	Nov. 26,	Express	Express
Daily, via	Daily, via	1871.	Daily, via	Daily, via
Oakland, Vallejo.	Oakland, Vallejo.		Oakland, Vallejo.	Oakland, Vallejo.
LEAVE	LEAVE	San Francisco	ARRIVE	ARRIVE
7:00 A.M.	8:30 A.M.	San Francisco	7:30 P.M.	8:30 P.M.
7:35 A.M.	9:00 A.M.	Oakland	8:00 P.M.	9:00 P.M.
7:55 A.M.	9:20 A.M.	San Jose	8:15 P.M.	9:15 P.M.
8:40 A.M.	10:00 A.M.	Niles	8:30 P.M.	9:30 P.M.
11:30 A.M.	12:30 P.M.	Stockton	8:45 P.M.	9:45 P.M.
12:30 P.M.	1:30 P.M.	Vallejo	8:55 P.M.	9:55 P.M.
1:15 P.M.	2:00 P.M.	Sacramento	9:10 P.M.	10:10 P.M.
ARRIVE	ARRIVE	Colfax	9:20 P.M.	10:20 P.M.
5:15 P.M.	6:00 P.M.	Colfax	9:30 P.M.	10:30 P.M.
12:45 A.M.	1:30 A.M.	Reno	9:40 P.M.	10:40 P.M.
1:00 A.M.	1:45 A.M.	Winnemucca	9:50 P.M.	10:50 P.M.
1:15 A.M.	2:00 A.M.	Battle Mountain	10:00 P.M.	11:00 P.M.
1:30 A.M.	2:15 A.M.	Elko	10:10 P.M.	11:10 P.M.
1:45 A.M.	2:30 A.M.	Ogden	10:20 P.M.	11:20 P.M.
2:30 A.M.	3:15 A.M.	Ogden	10:30 P.M.	11:30 P.M.
ARRIVE	ARRIVE	Ogden	10:40 P.M.	11:40 P.M.

## San Francisco and San Jose.

LEAVE	LEAVE	San Francisco	ARRIVE	ARRIVE
7:10 P.M.	8:00 P.M.	San Francisco	8:40 A.M.	5:30 P.M.
8:30 P.M.	9:20 P.M.	San Jose	7:55 A.M.	4:10 P.M.
ARRIVE	ARRIVE	San Jose	LEAVE	LEAVE

## San Francisco, Stockton and Modesto.

LEAVE	LEAVE	San Francisco	ARRIVE	ARRIVE
7:40 P.M.	8:30 P.M.	San Francisco	8:40 P.M.	12:30 P.M.
8:05 P.M.	8:55 P.M.	Lathrop	4:45 P.M.	8:10 A.M.
8:10 P.M.	9:00 P.M.	Modesto	12:15 P.M.	3:25 P.M.
8:30 P.M.	9:20 P.M.	Stockton	4:22 P.M.	7:45 A.M.
ARRIVE	ARRIVE	Stockton	LEAVE	LEAVE

## Sacramento, Marysville and Tehama.

LEAVE	LEAVE	Sacramento	ARRIVE	ARRIVE
8:45 A.M.	2:35 P.M.	Sacramento	1:05 P.M.	4:45 P.M.
10:00 A.M.	3:50 P.M.	Union	12:15 P.M.	3:25 P.M.
1:05 P.M.	4:55 P.M.	Marysville	10:20 A.M.	12:00 P.M.
8:00 P.M.	8:35 P.M.	Tehama	6:50 A.M.	5:30 P.M.
ARRIVE	ARRIVE	Tehama	LEAVE	LEAVE

**OAKLAND BRANCH.**—LEAVE SAN FRANCISCO, 7:00, 8:10, 9:20, 10:30, 11:40, 12:50, 1:00, 2:00, 3:00, 4:00, 5:15, 6:30, 8:00, 9:20, and 11:30 p. m. (23, 11, 12 and 3 o'clock only).  
LEAVE BROCKTON, 4:30, 5:40, 7:40, 9:00 and 11:00 a. m., 1:30, 2:40, 4:55, 6:10, 7:40 and 10:10 p. m.  
LEAVE OAKLAND, 5:40, 6:50, 8:00, 9:10, 10:00, and 11:10 a. m., 12:00, 1:40, 2:50, 3:50, 5:05, 6:20, 7:50 and 10:20 p. m.  
**ALAMEDA BRANCH.**—LEAVE SAN FRANCISCO, 7:20, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:20 and 5:30 to Fruit Vale only).  
LEAVE FRUIT VALE, 4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
LEAVE FRUIT VALE, 5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.

## CALIFORNIA PACIFIC RAILROAD.

Leave	Leave	Arrive at	Arrive at	Arrive at
S. Fran.	Vallejo.	Calistoga.	Marysville.	Sacra'to.
8:30 A.M.	10:30 A.M.	1:30 P.M.	4:00 P.M.	1:30 P.M.
9:00 P.M.	5:45 P.M.	8:15 P.M.	10:25 P.M.	8:40 P.M.
8:30 A.M.	10:35 A.M.	1:00 P.M.	5:15 P.M.	1:30 P.M.
Leave	Leave	Arrive at	Arrive at	Arrive at
Sacra'to.	Marysville.	Calistoga.	Vallejo.	S. Fran.
7:30 A.M.	6:00 A.M.	7:50 A.M.	10:15 A.M.	12:15 P.M.
2:30 P.M.	1:30 P.M.	2:15 P.M.	5:30 P.M.	7:30 P.M.
10:45 A.M.	10:45 A.M.	3:00 P.M.	5:20 P.M.	7:30 P.M.

## Sacramento, Davis and Marysville.

Leave	Leave	Leave	Arrive	Arrive
S. Fran.	Sacra'to.	Davis.	Wood'd.	Mar'ville
8:30 A.M.	11:45 A.M.	12:50 P.M.	1:25 P.M.	4:00 P.M.
4:00 P.M.	1:15 P.M.	8:05 P.M.	10:35 P.M.	3:15 P.M.
8:30 A.M.	2:30 P.M.	4:10 P.M.	3:28 P.M.	8:15 P.M.
Leave	Leave	Leave	Arrive	Arrive
Mar'ville	Wood'd.	Davis.	Sacra'to.	S. Fran.
6:00 A.M.	7:35 A.M.	8:05 A.M.	9:00 A.M.	12:15 P.M.
11:30 A.M.	2:35 P.M.	3:10 P.M.	4:00 P.M.	7:30 P.M.
10:45 A.M.	12:20 P.M.	3:10 P.M.	1:30 P.M.	7:30 P.M.

## SAN FRANCISCO &amp; N. PACIFIC R. R.

Leave	Leave	San Francisco	Arrive	Arrive
2:00 P.M.	4:35 P.M.	San Francisco	11:00 A.M.	8:15 A.M.
5:00 P.M.	7:35 P.M.	Petaluma	8:25 A.M.	5:00 P.M.
6:00 P.M.	8:35 P.M.	Santa Rosa	7:30 A.M.	4:00 P.M.
Arrive	Arrive	Healdsburg	6:45 A.M.	3:00 P.M.

## CAL. P. R. R. CO.'S STEAMERS.

Leave	Leave	San Francisco	Arrive	Arrive
4:00 P.M.	4:30 P.M.	San Francisco	10:00 P.M.	8:00 P.M.
6:00 P.M.	6:30 P.M.	Benicia	8:00 P.M.	6:00 P.M.
2:00 A.M.	2:30 A.M.	Stockton	2:00 P.M.	1:00 P.M.
2:00 A.M.	2:30 A.M.	Sacramento	2:00 P.M.	1:00 P.M.
Arrive	Arrive	Sacramento	LEAVE	LEAVE

\*Sundays excepted. †Sundays only.

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## Pianos to Let.

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I street, between Sixth and Seventh,  
ma18-tf Opposite old Capitol, SACRAMENTO.



### Meteorological Record

For the month ending Nov. 30, 1871, by Thos. Tennant, chronometer and watchmaker, Battery street, opposite the Custom House:

#### BAROMETER.

Mean height at 9 A. M. .... 30.17 inches.  
 " at 12 M. .... 30.15 "  
 " at 3 P. M. .... 30.14 "  
 " at 6 P. M. .... 30.13 "  
 Greatest height on the 24th at 9 A. M. .... 30.45 "  
 Least height on the 12th at 6 P. M. .... 29.76 "

#### THERMOMETER.

In the shade and free from reflected heat:  
 Mean height at 9 A. M. .... 57 degrees.  
 " at 12 M. .... 61 "  
 " at 3 P. M. .... 63 "  
 " at 6 P. M. .... 57 "  
 Greatest height on the 24th at 3 P. M. .... 70 "  
 Least height on the 28th and 30th at 9 A. M. .... 51 "

#### SELF-REGISTERING THERMOMETER.

Mean height during the night .... 43 degrees.  
 Greatest height on the morning of the 23d. .... 57 "  
 Least height on the morning of the 29th at 3h.35 "

#### RAIN GAUGE.

3d, 0.19 in.; 9th, 0.03 in.; 13th, 0.02 in.; 14th, 0.18 in.;  
 16th, 0.22 in.; 24th, 0.35 in.; 26th, 1.57 in.; 27th, 0.13 in.;  
 28th, 0.93 inches. Total for the month, 3.72 in. Total  
 for the season, 3.85 inches.

#### WINDS.

North, NE and NW on 17 days; East one day; West on  
 5 days; South and SW on 7 days.

#### WEATHER.

Clear on 16 days; variable on 5 days; cloudy on 9 days.

### New Incorporations.

The following have filed certificates with the  
 County Clerk, San Francisco:

**BLUE MOUNTAIN COAL M. Co.**—Capital stock,  
 \$500,000 in 500 shares. Trustees: W. G.  
 Schofield, E. S. Estee, F. N. Utter, M. G.  
 Kennedy and T. Loper.

**HARDY COAL M. Co.**—Capital stock, \$200,000  
 in 400 shares. Trustees: T. Hardy, W. Good-  
 ale, I. Boulet, E. McLean and J. Hardy.

**SAN FRANCISCO OLYMPIC CLUB.**—Pres., J. K.  
 Wilson; Vice Pres., W. M. Bunker; Sec., R. J.  
 Bush; Treas., F. C. Havens; Leader, W. S.  
 Lawton. Directors: W. H. Whitely, J. V. P.  
 Mathis, G. Leviston, L. A. Leavy, J. E. Hughes,  
 F. W. Van Reynegoni, J. O'Connor and D.  
 German.

**SANTA ROSA COAL M. Co.**—Capital stock,  
 \$500,000 in 5,000 shares. Trustees: A. Hnnt,  
 H. C. Kenedy, G. B. Densmore, J. Hutchinson  
 and S. J. Henry.

**THE Young Men's Christian Association,** of  
 S. F., has also incorporated.

**BLUE STAR COAL M. Co.**—Capital stock, \$2-  
 500,000 in 25,000 shares. Trustees: J. H. H.  
 Williams, G. E. Lane, Jr., and H. C. Killee.  
**HUDSON GOLD M. Co.**—Capital stock, \$1,000-  
 000 in 10,000 shares. Trustees: H. McClellan,  
 S. E. Olmstead, F. A. Smith, G. I. Ives and C.  
 A. Kenney.

The following have filed certificates in the  
 Secretary of State's office, Sacramento:

**BOWER GOLD M. Co.**—Capital stock, \$1,000-  
 000 in 20,000 shares. Trustees: G. L. Bradley,  
 G. Bower, C. E. Elliott, I. G. Hoyt and Peter  
 Brandon.

**COOPER'S AGRICULTURAL IRRIGATION Co.**—  
 Capital stock, \$1,000 in 10 shares. Trustees:  
 Stephen Cooper, Sarschel Cooper and B.  
 Cooper.

**RUSSIAN RIVER WATER Co.**—Capital stock,  
 \$1,000,000 in 100,000 shares. Trustees: J. B.  
 Frisbie, F. D. Atherton, W. F. Babcock, M. S.  
 Latbam, T. Parrott, E. H. Green and A. de  
 Laski.

**SALINAS SKATING RINK.**—Capital stock, \$4,000  
 in 80 shares. Trustees: I. J. Hovey, J. B.  
 Iveson and W. Vanderhust.

**ALPINE GOLD MILL AND M. Co.**—Capital stock,  
 \$1,200,000 in 12,000 shares. Trustees: J. W.  
 Gasbiller, J. F. Boyd, C. N. Felton, T. H.  
 Morgan and T. M. Lither.

**SACRAMENTO CENTRAL CANAL Co.**—Capital  
 stock, \$10,000,000 in 100,000 shares. Trustees:  
 W. P. Dangerfield, J. W. Gregg and Thos. R.  
 Lowe.

**JUSTIN M. Co.**—Capital stock, \$2,100,000 in  
 21,000 shares. Trustees: R. F. Morrow, G.  
 Beaver, I. O. Thorn, G. W. Gordon and T. H.  
 Williams.

**DAVE CROCKETT SILVER M. Co.**—Capital  
 stock, \$800,000 in 1,000 shares. Trustees: W.  
 P. C. Stebbins, J. H. Wilcox, W. J. Williams,  
 J. E. Nutting and H. Baker.

**BOWERY CONS. MILL AND M. Co.**—Capital  
 stock \$3,000,000 in shares of \$100 each. Trus-  
 tees: L. J. Hanchett, H. Myers, N. C. Fasset,  
 J. Spear and J. D. Fry.

**BARTLETT'S SPRING AND BEAR VALLEY TOL-  
 ROAD Co.**—Capital stock, \$6,000 in 3 shares.  
 Trustees: T. B. Burger, J. C. Greenwood and  
 T. B. Penny.

**OUR BULLETIN-BOARD.**—The elegant and  
 unique bulletin-board, which we have  
 placed in front of our office this week, was  
 painted by F. Mansel, No. 412 Pine street.  
 Mr. Mansel is one of our best-known sign  
 painters, and specimens of his work may be  
 seen in all our principal streets. His signs  
 are always neat and tasteful, and his  
 charges reasonable.

**NEGLECTING THE STRAWBERRIES.**—The  
 strawberry fields about San José were so  
 unprofitable last season that one-third and  
 perhaps one-half the plants have been ne-  
 glected so that they died.

### The Scientific Press,

Established in 1860, is now the Largest, Most  
 Original, Best Illustrated and most Ably and  
 Carefully Edited Practical Mining Journal on  
 the Western Continent. Its contents are made  
 up of fresh intelligence in a condensed and inter-  
 esting style, easily appropriated by the reader,  
 who finds its columns replete with new facts  
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 cause of practical knowledge and science, by assisting  
 Agents in their labors of canvassing, by lending their  
 influence and encouraging favors. We intend to send  
 none but worthy men.

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 A. H. DWINELEE—Special Corresponding Agent.  
 T. B. POWERS—Solana and neighboring Counties.  
 L. N. HOAG—Sacramento, General Agent.  
 F. M. SHAW—San Diego.  
 L. P. MCCARTY—California.  
 M. W. LEVY—Denver, Colorado.  
 M. B. STARR—Pacific Coast.  
 THOS. POTZER—California.  
 WM. J. CLARK—California.  
 T. W. DRULLMAN—California.  
 JOSEPH DIMMICK—California.  
 E. P. HICKS—California and Oregon.  
 A. C. KNOX, City Soliciting and Collecting Agent.

#### Our Printed Mail List.

Subscribers will notice that the figures found on the  
 right of the pasted slips, represent the date to which  
 they have paid. For instance, 21st/70 shows that our  
 patron has paid his subscription up to the 21st of Sep-  
 tember, 1870; 4th/72, that he has paid to the 4th of  
 January, 1872; 4th/73, to the 4th of July, 1873. The in-  
 verted letters occasionally used are marks of reference,  
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 erly credited within two weeks after paying.

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 ments," illustrated, published and sold by  
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 are sources of Pulmonary and Bronchial Affections.  
 Experience having proved that simple remedies act  
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 at once "BROWN'S BRONCHIAL TROCHES," let the Cold,  
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 by this precaution a more serious attack may be ward-  
 ed off. Owing to the good reputation and popularity of  
 the Troches, many worthless and cheap imitations are  
 offered which are good for nothing. Be sure to OBTAIN  
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 should remember that the Pacific Business College is  
 the oldest and most popular and successful Business  
 Training School on this coast. Upwards of Three  
 Thousand Students have attended during the past six  
 years, many of whom now hold prominent positions in  
 the first banking and mercantile houses of this city.  
 This is the MODEL TRAINING SCHOOL FOR BUSINESS on the  
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 Teachers, and the greatest number of Students at  
 tendance, of any institution of the kind. Young men  
 flock to this College from all parts of the Pacific States  
 and Territories, British Columbia, Mexico, Sandwich  
 Islands and South America. We shall be pleased to  
 send our College Circular, giving full information, to  
 all who send the address. When you write, mention  
 that you saw this notice in the Scientific Press.  
 M. K. LAUDEN, President, San Francisco, Cal.

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 sent to a new one. We cannot afford to look over sev-  
 eral thousand names to stop it at the former P. O.

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 gomery street, corner of Pine.

### San Francisco Retail Market Rates.

THURSDAY NOON, December 7, 1871.

#### PRODUCE, ETC.

Flour, ex, 50 lbs.	88 25	Oats, 100 lbs.	75 00
Superfine, do 60	87 00	Barley, cwt.	85 00
Corn Meal, 100 lbs.	83 50	Beans, cwt.	50 00
Wheat, 100 lbs.	82 50	Hay, 1 ton	24 00

#### FRUITS, VEGETABLES, ETC.

Pine Apples, 100 lbs.	3 00	Garlics, 50 lbs.	5 00
Green Peas, 100 lbs.	3 00	Rock Onions, 50 lbs.	12 1/2
Cal. Walnuts, 100 lbs.	20 00	Sugar Peas, 100 lbs.	8 00
Cranberries, 100 lbs.	75 00	Cucumbers, doz.	37 1/2
Cranberries, 100 lbs.	75 00	Lettuce, 100 lbs.	12 00
Pears, table, 100 lbs.	75 00	Mushrooms, 100 lbs.	50 00
Plums, Cherry, 100 lbs.	6 00	Horseshoe, 100 lbs.	20 00
Strawberries, 100 lbs.	6 00	Okra, dried, 50 lbs.	50 00
Oranges, 100 lbs.	100 00	Pumpkins, 100 lbs.	3 00
Lemons, 100 lbs.	50 00	Paranips, bunches	3 00
Limes, per 100	1 50	Parsley, 50 lbs.	25 00
Figs, dried, 50 lbs.	75 00	Pickles, 50 gal.	50 00
Asparagus, 100 lbs.	75 00	Rock Onions, 50 lbs.	12 1/2
Artichokes, 100 lbs.	6 00	Radishes, bunches	25 00
Artichokes, doz.	50 00	Green Peppers, 100 lbs.	8 00
Brussels sprouts, 100 lbs.	20 00	Red, do.	25 00
Spinach, 100 lbs.	20 00	Summer Squash, 100 lbs.	6 00
Potatoes, 100 lbs.	2 00	Marrowfat, doz.	4 00
Potatoes, sweet, 100 lbs.	3 00	Hubbard, doz.	4 00
Broccoli, 100 lbs.	2 00	String Beans, 100 lbs.	8 00
Cauliflower, 100 lbs.	3 00	Dry Lima, 100 lbs.	15 00
Cabbage, 100 lbs.	75 00	Spinage, 100 lbs.	25 00
Carrots, 100 lbs.	10 00	Salsify, bunch 100 lbs.	25 00
Cress, doz. bunch	20 00	Turnips, 100 lbs.	25 00
Dried Herbs, 100 lbs.	25 00	New Tomatoes, 50 lbs.	25 00

#### POULTRY, GAME, FISH, MEATS, ETC.

Chickens, 100 lbs.	75 00	Oregon, doz.	18 00
Turkeys, 100 lbs.	20 00	Hams, Cal. 100 lbs.	18 00
Ducks, 100 lbs.	50 00	Hams, Cross 100 lbs.	25 00
Geese, 100 lbs.	75 00	Smoked, 100 lbs.	25 00
Teal, 100 lbs.	3 00	Whittaker's, 100 lbs.	25 00
Geese, wild, pair	75 00	Johnson's, 100 lbs.	25 00
Tame, pair	25 00	Flounder, 100 lbs.	30 00
From Chicago, 100 lbs.	20 00	Salmon, 100 lbs.	20 00
Hens, each	75 00	Smoked, new, 100 lbs.	10 00
Snipe, 100 lbs.	150 00	Pickled, 100 lbs.	6 00
English, 100 lbs.	250 00	Perch, 100 lbs.	8 00
Venison, 100 lbs.	125 00	Perch, 100 lbs.	8 00
Quails, 100 lbs.	225 00	Fresh water, 100 lbs.	12 1/2
Pheasants, 100 lbs.	300 00	Lake Big Trout, 100 lbs.	37 1/2
Wild, 100 lbs.	40 00	Sole, 100 lbs.	30 00
Hares, each	40 00	Smelts, small, 100 lbs.	12 00
Rabbits, tame, 100 lbs.	50 00	Large do., 100 lbs.	15 00
Wild, do. 100 lbs.	125 00	Herring, fresh, 100 lbs.	5 00
Squirrel, 100 lbs.	20 00	Salmon, 100 lbs.	20 00
Beef, tend, 100 lbs.	20 00	Tomcod, 100 lbs.	25 00
Sirloin and rib, 100 lbs.	18 00	Terrapin, 100 lbs.	25 00
Corned, 100 lbs.	15 00	Mackerel, 100 lbs.	25 00
Smoked, 100 lbs.	15 00	Sea Bass, 100 lbs.	25 00
Pork, rib, etc., 100 lbs.	12 1/2	Halibut, 100 lbs.	50 00
Chops, do. 100 lbs.	12 1/2	Murghon, 100 lbs.	50 00
Veal, 100 lbs.	15 00	Oysters, 100 lbs.	10 00
Cutlet, do. 100 lbs.	12 1/2	Chesp, 100 lbs.	10 00
Mutton chops, 100 lbs.	12 1/2	Turbot, 100 lbs.	50 00
Lamb, 100 lbs.	12 1/2	Soft Shell, 100 lbs.	37 00
Tongues, beef, ea	75 00	Shrimps, 100 lbs.	10 00
Tongues, pig, ea	15 00	Prawns, 100 lbs.	25 00
Bacon, Cal., 100 lbs.	18 00		

\* Per lb. † Per dozen. ‡ Per gallon.

### San Francisco Metal Market.

(Corrected weekly by Hooker & Co., 117 and 119 Cal. street.)

#### PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, December 7, 1871

IRON.—Duty: Pig, 57 1/2 ton; Railroad, 60 1/2 100 lbs; Bar, 100 lbs; Sheet, polished, 3c 1/2 lb; common, 1 1/2 1/2 lb; Plate, 150 1/2 lb; Pipe, 150 1/2 lb; Galvanized, 2 1/2 1/2 lb; Scotch and English Pig Iron, 100 lbs; 50 00
White Pig, 100 lbs. .... 45 00
Refined Bar, bad assortment, 100 lbs. .... 04 00
Refined Bar, good assortment, 100 lbs. .... 05 00
Boiler, No. 1, 100 lbs. .... 05 00
Plate, No. 5 to 9. .... 05 00
Sheet, No. 10 to 13. .... 05 1/2
Sheet, No. 14 to 20. .... 06 00
Sheet, No. 21 to 24. .... 06 00
Horse Shoes. .... 7 50
Nail Rod. .... 7 50
Norway Iron. .... 7 50
Rolled Iron. .... 7 50
Other Irons for Blacksmiths, Miners, etc. 5 00
COPPER.—Duty: Sheathing, 3 1/2 c 1/2 lb; Pig and Bar, 2 1/2 c 1/2 lb.
Sheathing, 100 lbs. .... 24 00
Sheathing, Yellow. .... 24 00
Sheathing, Old Yellow. .... 11 00
Composition Nails. .... 24 00
Composition Bolts. .... 24 00
TIN PLATES.—Duty: 2 1/2 cent. ad valorem.
Plates, Charcoal, 100 lbs. .... 12 00
Plates, 100 lbs. .... 10 00
Roofing Plates. .... 11 00
Banca Tin, Slabs, 100 lbs. .... 16 00
Sheet, English Cast Steel, 100 lbs. .... 16 00
Drill. .... 16 00
Flat Bar. .... 17 00
Plough Points. .... 3 75
Red, second class, 100 lbs. .... 12 1/2
QUICKSILVER.—Duty: 100 lbs. .... 85 00
LEAD.—Pig, 100 lbs. .... 08 1/2
Sheet. .... 08 1/2
Pipe. .... 09 00
Bar. .... 09 00
ZINC.—Sheets, 100 lbs. .... 10 00
BORAX.—Refined. .... 25 00
Borax, crude. .... 5 00

### Leather Market Report.

(Corrected weekly by Dolliver & Bro., No. 109 Post st.)

SAN FRANCISCO, Thursday, December 7.  
 Sole Leather.—Eastern shipments still keep the market firm and the demand good.  
 City Tanned Leather, 100 lbs. .... 28 00  
 Country Leather, 100 lbs. .... 25 00  
 French stock comes in more freely, and prices are easier in leather stock.  
 California kip and calf skins are still in demand.  
 Jodot, 8 Kil, per doz. .... 50 00  
 Jodot, 10 to 12 Kil, per doz. .... 70 00  
 Jodot, 12 to 14 Kil, per doz. .... 80 00  
 Lemone, 10 to 12 Kil, per doz. .... 85 00  
 Levin, 12 and 13 Kil, per doz. .... 88 00  
 Corneillon, 16 Kil, per doz. .... 72 00  
 Corneillon, 12 to 14 Kil, per doz. .... 65 00  
 Ogeron Calif, 10 doz. .... 50 00  
 Simon, 18 Kil, 10 doz. .... 65 00  
 Simon, 20 Kil, 10 doz. .... 65 00  
 Robert Calif, 7 and 8 Kil. .... 35 00  
 French Kips, 100 lbs. .... 1 10  
 French Kips, 100 lbs. .... 60 00  
 French Kips, 100 lbs. .... 15 00  
 Eastern Calf for Backs, 100 lbs. .... 1 15  
 Sheep Rans for Topping, all colors, 100 lbs. .... 8 00  
 Sheep Rans for Lining, 100 lbs. .... 5 00  
 California Russet Sheep Lining, 100 lbs. .... 1 75  
 Best Jodot Calf Boot Legs, 100 lbs. .... 5 25  
 Good French Calf Boot Legs, 100 lbs. .... 4 50  
 French Calf Leather, 100 lbs. .... 30 00  
 Harness Leather, 100 lbs. .... 30 00  
 Bridle Leather, 100 lbs. .... 48 00  
 Saddle Leather, 100 lbs. .... 48 00  
 Well Leather, 100 lbs. .... 30 00  
 Buff Leather, 100 lbs. .... 17 00  
 Wax Side Leather, 100 lbs. .... 18 00

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING  
 Machine against easy monthly installments may apply  
 to No. 234 Broadway, N. Y. 26th, 47th 9th Ave., New York  
 Good work at high prices if desired. 21v1-12mbp

### Situation as Chemist Wanted.

The undersigned, having completed the working  
 course of Chemistry in La Fayette College, Easton, Pa.,  
 including Dry Assay of Ores and Blowpipe Analysis,  
 desires a situation requiring a

#### Practical Knowledge of Chemistry.

By permission refers to Dr. Traill Green, Professor of  
 Chemistry in La Fayette College.  
 B. CHAMBERS, JR.,  
 Chambersburg, Pa.

### Designing and Engraving



Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Altona Gravel Mining Company—Location of works, Grass Valley, Nevada County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 31st day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Beatty, Frank G.....	17	200	\$50 00
Beatty, Frank G.....	271	18	4 50
Cohn, L B.....	220	200	50 00
Cohn, L B.....	264	18	4 50
Dibble & Byrne.....	118	100	25 00
Dibble & Byrne.....	119	100	25 00
Dibble & Byrne.....	120	50	12 50
Dibble & Byrne.....	272	23	5 75
Dodge, D F.....	270	36	9 00
Orant, Emanuel.....	206	7	1 75
Hooper, Aaron.....	227	100	25 00
Hooper, Aaron.....	273	9	2 25
Jeffrey, E H.....	269	25	6 25
Murbar, Martin.....	222	200	50 00
Murbar, Martin.....	274	18	4 50
Pinkham, S.....	145	100	25 00
Pinkham, S.....	258	9	2 25

And in accordance with law, and an order of the Board of Trustees, made on the 31st day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at No. 327 Montgomery street, San Francisco, Cal., on the 26th day of December, 1871, at the hour of 3 o'clock p. m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

DANIEL WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. d9 3w

Eagle Quicksilver Mining Company—Location of Works, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 20th day of October, 1871, an assessment of Forty (40) dollars per share was levied upon each and every share of the mines of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any share upon which said assessment shall remain unpaid on Thursday, January 4th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, the 6th day of January, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. nov4d

Mina Rica Mining Company—Location of Works, Auburn District, Placer County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 15th day of November, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, 414 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 18th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.  
Office, Room No. 2, third floor, 414 California street, San Francisco, California. nov18-5w

Nevada Consolidated Borax Company—Location of works, Columbus and Fish Lake Valleys, Esmeralda county, Nevada.

Notice is hereby given, that at a meeting of the Trustees of the above named company, held November 25th, 1871, an assessment of five (5) cents per share was levied on the capital stock of said company, payable on and after the 20th day of November, 1871, in U. S. gold coin, to the Secretary, at the office of the company, No. 420 Montgomery street, San Francisco. Any stock upon which said assessment shall remain unpaid on Wednesday, January 10th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold at public auction on Monday, January 23rd, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. L. SANFORD, Secretary.  
Office—Room 1, 3d story, No. 420 Montgomery street, San Francisco, California. d9-5t.  
San Francisco, December 6th, 1871.

Ophir Copper, Silver and Gold Mining Company—Location of works, Ophir, Placer County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 23d day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Brush, R G.....	215	38	\$22 80
Brush, R G.....	298	30	18 00
Buiford, H L.....	315½	5½	3 30
Baum, Chas.....	815	100	60 00
Brush, R G, Trustee.....	329	100	60 00
Brush, R G, Trustee.....	331	50	30 00
Curry, John.....	213	25	15 00
Kip, Jr., W J.....	237	500	300 00
McCurdy, E.....	173	100	14 00
McCurdy, John R.....	133	100	60 00
McCurdy, John R.....	190	12	7 20
McAlister, C J C.....	339	400	240 00
Reynolds, W O.....	210	19	11 40
Swain, H C.....	245	100	60 00
Swain, H C.....	320	50	30 00
Swain, H C.....	294	50	30 00
Swain, H C.....	318	50	30 00
Swain, H C.....	319	50	30 00
Speyer, Richard.....	309	24½	14 70
Torrance, R J.....	293	50	30 00

And in accordance with law and an order of the Board of Trustees, made on the 23d day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, on the 15th day of December, 1871, at the hour of 1 o'clock p. m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. G. BRUSH, Secretary.  
Office, 314 California street, San Francisco, California. d2-3w

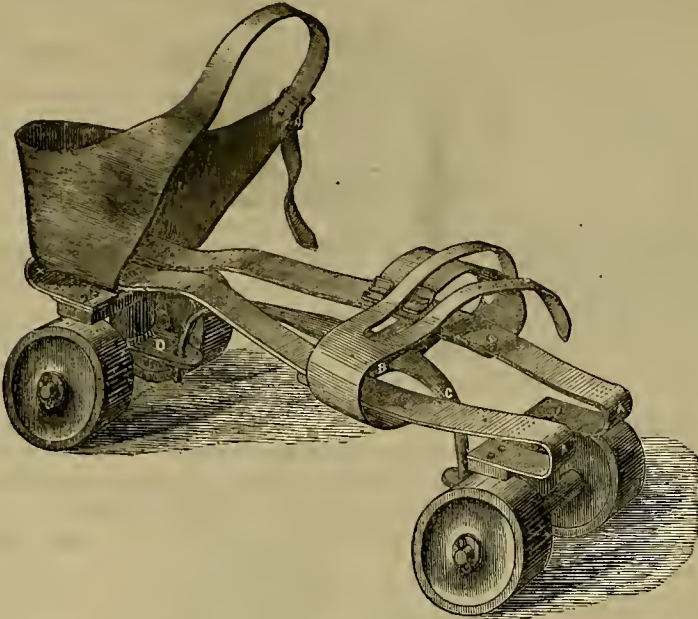
Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 29th day of November, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 16, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.  
Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal. d2-3w

THE C-SPRING ROLLER SKATE,

PATENTED 1871.



Rights and Skates for Sale.

This superior Skate is now beginning to attract the attention of Rink Owners, it being the only Cramping Skate now before the public (except the Plympton Skates) that can run without infringing a former patent.

This Skate is Positively no Infringement

of anybody's patent. It is made in the most substantial and workmanlike manner, and possesses the following points of merit: Beauty, Elasticity, Ease of Movement, Strength, Lightness, and does not injure the skating floor as much as the ordinary skate.

Every pair Warranted to be just what it is represented. Parties intending to

START A RINK,

Should examine and test this Skate. Sample pairs sent C. O. D. on application.

For City, County or Rink Rights, call on or address  
21v23-tf  
WIESTER & CO.,  
No. 17 New Montgomery street (under Grand Hotel), SAN FRANCISCO.

HUGHES' PATENT

REMOVABLE GLOBE LANTERN.



Since the time when King Alfred made the first lantern by surrounding a candle with a transparent casing of horn, this class of appliances has been one of the greatest utility and most extended use. Among the latest improvements in its construction is that illustrated in the accompanying engravings, and designed to secure the threefold object of providing for the easy cleansing of the glass portion, the secure retention of the upper in place upon the lower part of the lantern, and the affixing of the hall to the top of the lantern in a durable and efficient manner. The base of the lantern is provided with the usual detachable lamp, and at one side has hinged to its upper edge a wire frame designed to carry and protect the glass portion or body of the lantern, and at the upper end of which is the cylindrical top, perforated in the ordinary manner to permit the escape of the products of combustion from the lamp. Arranged at that side of the base opposite the hinge is an angular spring catch so applied as to catch over the annular lower rim of the wire frame, and in conjunction with the hinge, to hold the said frame firmly in place upon the base as required when the lantern is in use.

This Lantern is offered as

The Best and Most Desirable in Use,

all things considered. Its price is reasonable, and when once tried no other will be accepted.

Individuals, Dealers, Railroad Companies, and all persons and institutions about to purchase Lanterns, should inquire for this kind; and if not for sale in your locality, address the inventor for circular of full description, price list, etc.

Patented August 10 and December 28, 1869, by

Address 1811 Sidney street, East Birmingham, Pa.

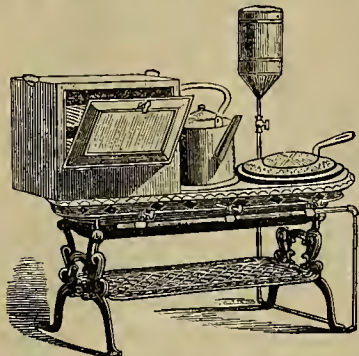
JOHN HUGHES.

3v23-2t am5m

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THE IMPROVED AMERICAN VAPOR STOVE.



No Wood, Coal, Smoke, Ashes, Stovepipe nor Chimneys, and Perfectly Safe, Economy and Convenience combined.

WILLIAM FRIEL, Manufacturer,

No. 69 and 71 Fourth street, S. F.

All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasoline and Patent Oils for Stoves and Lamps for sale. County Rights for sale. 10v23-3m

LUBRICATING OIL,

THE BEST IN THE WORLD!

The attention of the public is called to GRUBER'S NEW PATENT LUBRICATING OIL.

For running Machinery of all kinds it has no equal.

It will not gum, and runs perfectly smooth, cool and clean.

This OIL offers special inducements to Farmers, Livery Stable Keepers, etc.

It will be found far Superior

To any other Oil or Grease now in use, for Carriages, Wagons, and all kinds of Farming Machinery.

Mill-men, Printers, and all others having occasion to use a Lubricator, will find decided advantage in using this Oil—one gallon being equal to two of the best Oil in the market.

Perfect Satisfaction Guaranteed

OR MONEY REFUNDED.

Orders per Mail or Express will receive prompt attention.

Office and Salesroom—

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Corner Drumm and Market streets, SAN FRANCISCO.  
no25-3m-bp-5a

PLUMBAGO CRUCIBLES.

MORGAN'S CELEBRATED PLUMBAGO CRUCIBLES, all sizes (except 25 and 30), from No. 1 to 100, for sale low to close consignment. 22v23-3m A. S. HALLIDIE, 619 Front street, S. F

Seaton Mining Company—Location of works, Drytown Mining District, County of Amador, State of California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 27th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Ashbunrow, Wm.....	61	1	\$20 00
Gashwiler, J W.....	56	1	20 00
Grogan, A B (not issued)		10	200 00
Hastings, H F.....	67	10	200 00
Latham, M S.....	60	5	100 00
Latham, M S.....	61	5	100 00
Latham, M S.....	63	5	100 00
Latham, M S.....	65	4	80 00

McDonald, J W, Trustee for J W Gashwiler..... 71 5 100 00  
Pringle, Geo C..... 70 5 100 00  
Scott, Ed, Trustee..... 69 5 100 00  
Tovis, Lloyd..... 48 5 100 00

And in accordance with law and an order of the Board of Trustees, made on the 27th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 433 California street, San Francisco, California, on the 30th day of December, 1871, at the hour of 1 o'clock p. m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOEL F. LIGHTNER, Secretary.  
Office, No. 438 California street, San Francisco, California. 23v23-4w

Starlight Gold and Silver Mining Company

—Location of works, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 1st day of November, 1871, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office in San Francisco. Any stock upon which said assessment shall remain unpaid on the 15th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 2d day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. nov4-4w

Tecumseh Gold, Silver and Copper Mining Company—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 5th day of December, 1871, an assessment of three (\$3) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Hermann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 9th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. S. HARMANN, Secretary. d9td.  
Office 516 Kearny street.

MINING BUREAU

—OF THE—

Pacific Coast.

Sacramento City Office at Vice-Consulate of France. San Francisco Office, 331 Montgomery street (Steve's son's Building), Room 32, Third floor.

J. BERTON, President.

E. P. HUTCHINS, Secretary.

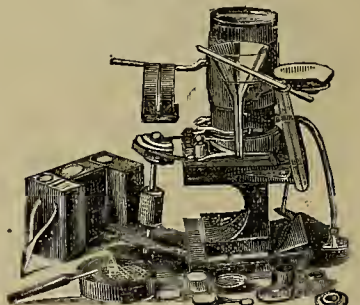
N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.

J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.

423 Washington street.....San Francisco

Author of "The Explorers', Miners', and Metallurgists' Companion."  
Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.  
Patented September 7, 1869.



Arranged for the general purposes of the Analyst and Assayer.

Price, with instructions, tools and fluxes, \$100.

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OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.

B. BOTTSCHILD, Secretary. 20v17



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ESTABLISHED 1851.

**PACIFIC IRON WORKS,**

First and Fremont streets,

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IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.**Steam Engines and Boilers,**

MARINE AND STATIONARY,

**IRON AND BRASS CASTINGS**

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S OLEBRATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.**FULTON****Foundry and Iron Works.**

HINCKLEY &amp; CO.,

MANUFACTURERS OF

**STEAM ENGINES,****Quartz, Flour and Saw Mills,**

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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**GEORGE T. PRACY, MACHINE WORKS,**109 and 111 Mission Street,  
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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

**STEAM ENGINES,**Flour and Saw Mills,  
QUARTZ MACHINERY,  
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

**Improved Safety Store Hoists,**

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.  
4v23tf**PACIFIC****Rolling Mill Company,**

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Established for the Manufacture of

**RAILROAD AND OTHER IRON.**

—AND—

**Every Variety of Shafting,**

Embracing ALL SIZES of Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

**—ALSO— HAMMERED IRON**

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron. 9v143m

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**LIGHT AND HEAVY CASTINGS,**

of every description, manufactured 24v16qr

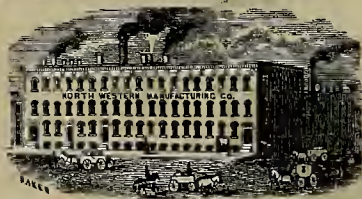
**Miners' Foundry and Machine Works,**

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

I. L. MORTHRAP, President. 7v23tf

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General Offices and Sale-room—No. 10 N. Jefferson Street.**MANUFACTURERS OF****STEAM ENGINES, STEAM PUMPS, WROUGHT IRON PIPE, Brass and Iron Goods for Steam and Gas Fitters and Engine Builders, Cast Iron and Malleable Iron Fittings and Castings.****STEAM WARMING AND VENTILATING APPARATUS**

for public and private buildings. Hoisting Machines of approved patterns. Send for Illustrated Catalogue.

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San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

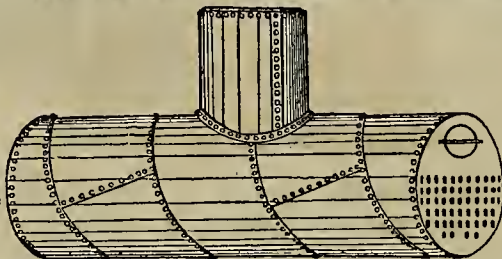
High and Low  
Pressure**BOILERS**

of all descriptions.

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SOLE

Manufacturers of the

CELEBRATED

**SPIRAL BOILER.**

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Sheet Iron Work

to every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

**JOBGING**

and

Repairing

Promptly Attended

to.

**To Coal Operators, Miners and Railroad Corporations.**

(YOUR ATTENTION IS INVITED TO)

**THE GRICE & LONG LOCOMOTIVE WORKS,**

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Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. &amp; L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

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CAPITAL.....\$1,000,000.**LOCATION OF WORKS:**Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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WM. H. TAYLOR.....President.

C. E. McLANE.....Vice President.

JOSEPH MOORE.....Superintendent.

LEWIS R. MEAD.....Secretary.

24v17-4y

**UNION IRON WORKS,**

Sacramento.

**WILLIAMS, ROOT & NEILSON,**

MANUFACTURERS OF

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CROSS' PATENT BOILER FEEDER AND SEDIMENT

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WILCOX'S PATENT WATER LIFTERS,

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PACKING, for new and old cylinders.

And all kinds of Mining Machinery.

Frost Street, between N and O streets,

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(INCORPORATED MARCH 16, 1871),

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Manufacturers of

**MACHINERY AND CASTINGS**

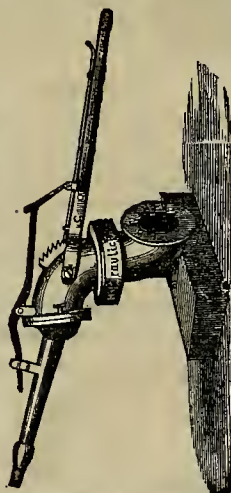
of every description.

Particular attention given to Castings for Mills and Horse Fronts. All Work done at the Lowest Price and Shortest Notice. 23v22-3m

**Machinery.****HYDRAULIC CHIEF.**

FISHER'S KNUCKLE JOINT AND NOZZLE.

is the Best Hydraulic Machine in Use.

MACHINES MANUFACTURED TO ORDER,  
to throw from one to an eight-inch stream.

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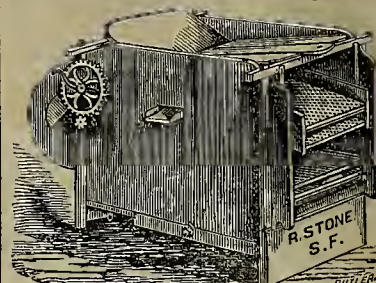
ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. PRICES MODERATE. J. H. WEED, V. KINGWELL.

**CAST IRON PIPE, FOR WATER AND GAS.**

PIPE of all sizes, of a very superior quality, is now being made at the

**Pacific Iron Works,**

In this city, under the Patents of Farrar &amp; Whiting. 17v23-3m GODDARD &amp; CO.

**THE PATENT Novelty Mill and Grain Separator**

Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far exceeds anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grease Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

For further information apply to R. STONE, 25v22-3m 422 Battery street, San Francisco.

**WHY THE WILSON****Patent Steam Stamp Mill**

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchaser shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

**THERE IS A SAVING**

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

**DO NOT BE DECEIVED**

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation. For further particulars address

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**WOODWORKING MACHINERY**

MOLDING, MORTISING, TENONING AND SHAPING MACHINES, BAND SAWS, SCROLL SAWS, Planing &amp; Matching MACHINES, ETC., For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc. Superior to any in use.

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**Hoisting and Pumping Machine FOR SALE.**

Engine and Boiler of 30-Horse Power; Pump 8-inch bore, 5-foot stroke, complete, with Pipe, Gearing, Friction Hoist, etc., in good order. For further particulars apply to or address E. T. STEEN, 21v23-4t Telegraph City, Calaveras county, CAL.

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THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.  
All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.  
2v22-3m JOSEPH MOORE, Superintendent.

## The California Powder Works

No. 314 CALIFORNIA STREET,  
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Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

OF SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the Interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.  
We have been awarded successfully

Three Gold Medals

By the MECHANICS INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.  
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.  
16v20-3m JOHN F. LOHSE, Secretary.

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ANTI-SCALE COMPOUND,

For the Prevention of Incrustation in Steam Boilers,

Patented July 25, 1871.

The Cheapest and Most Effectual Material for the purpose ever introduced.

REFERENCES—Eisen Bros., Pioneer Flour Mills; U. S. B. Mint, S. F.; Korbel & Bros., South Park Saw Mills; Miners' Foundry, Pacific Iron Works, Etna Iron Works, Pacific Saw Factory, Nelson & Doble, Messrs. Hohs & Gilmore, Etc., Etc. Send for Circular with Testimonials and Directions.

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C. M. CORNELL ..... 72 South C street, Virginia, Nev.  
MOTT, FISH & CO. .... Main street, Hamilton, Nev.

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PLUMBER,

—AND—

Manufacturer of Pumps and Water Closets,  
No. 220 Fremont street, opposite Fulton and Etna  
Iron Works, San Francisco, Cal.  
18v23-3m

## NIAGARA STEAM PUMP WORKS.

FIRST PREMIUM

American Institute, 1867 and 1870.

CHARLES B. HARDICK,

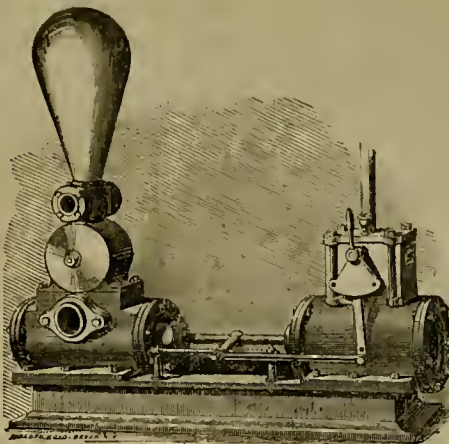
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SOLE MANUFACTURER

Hardick's Patent Double-Acting  
Steam Pump  
and Fire Engine.

PATENTED IN ENGLAND, BELGIUM AND  
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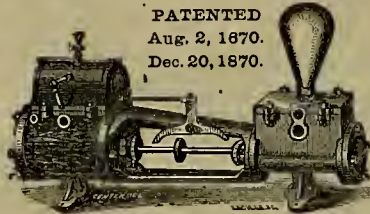


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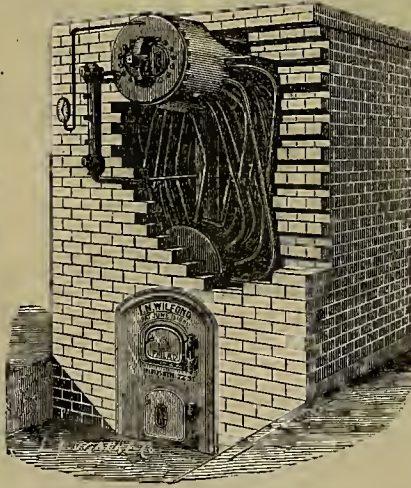
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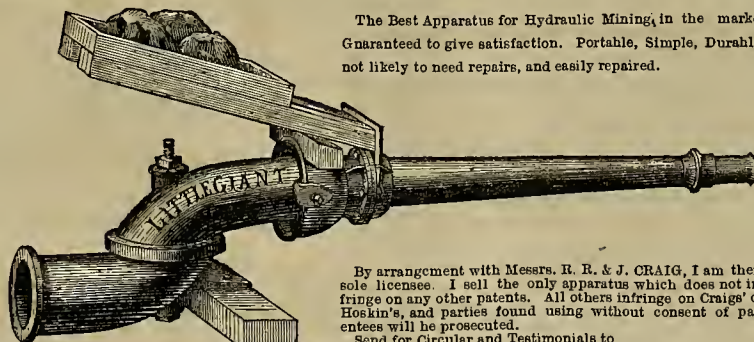
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SAN FRANCISCO, SATURDAY, DECEMBER 16, 1871.

VOLUME XXIII.  
Number 24.

## Improved Universal Wood-Working Machine.

Our illustrations represent an improved wood-working machine. Fig. 1 is the front side, and Fig. 2 the reverse side with "sticker" attachment to plane four sides. It is necessarily a somewhat complicated piece of mechanism, but being made of iron and steel, is not very likely to get out of order. The great variety of work which it is capable of performing, makes it a labor saving machine. It does all kinds of jointing, square or bevel; squaring; planing straight and out of wind, parallel or taper; straight, circular and elliptical moulding; panel-raising; plowing; rabbeting; cornering; beveling; tonguing and grooving; hard-matching; smoothing; beading; fluting; chamfering; rounding; nosing; sawing; boring, etc., and other similar work.

The machine will plane one, two, three or four sides at one operation, and is easily adjusted for all classes of work. The planer is eight inches wide, and the moulding machine puts through any size from a light to an 8-inch crown moulding. The panel-raiser varies and finishes one or both sides at the same time, for immediate use with square, bevel or moulded raise, and the jointer makes glue, rolling table and flooring joints. A round, bevel groove, or gain may be made from  $\frac{1}{8}$  to 8 inches wide, by the gainer, and will permit the use of a rip or cross cut saw twelve inches in diameter. A boring machine is also attached having an 18-inch sliding-table and 14 inches drop. On the routing table, bed, table and fence posts can be routed and round-ended mortises made. The radius planer (known as the Bumble-bee) planes wagon felloes, hounds, cart and drag shafts, etc.

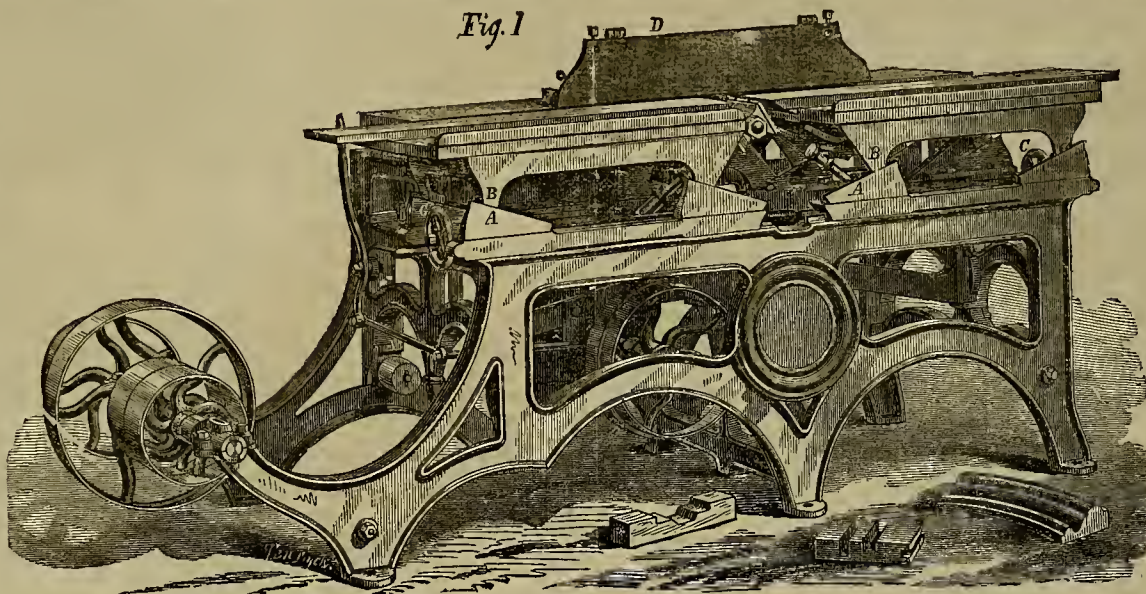
In referring to the engravings we must necessarily omit many of the details and point out some of the principal features

in the general construction. In Fig. 1 is shown the vertical adjustment of the tables, an arrangement that is accomplished through the action of the inclined planes, *A*, simultaneously moved by hand screws, *C*. On these planes rest the in-

furniture factories, car building, wagon and carriage manufactories, etc. Among the many advantages claimed for it are the great variety of work it can perform; ease of adjustment; saving in time and labor; strength, durability and accuracy in per-

Moreover, since it is capable of working material from the rough and performing all the necessary operations to finish it, there is no necessity for the machine to stand idle. For further particulars concerning it, address McBeth, Bentel & Margendant, manufacturers of wood-working machinery, Hamilton, Ohio.

Fig. 1

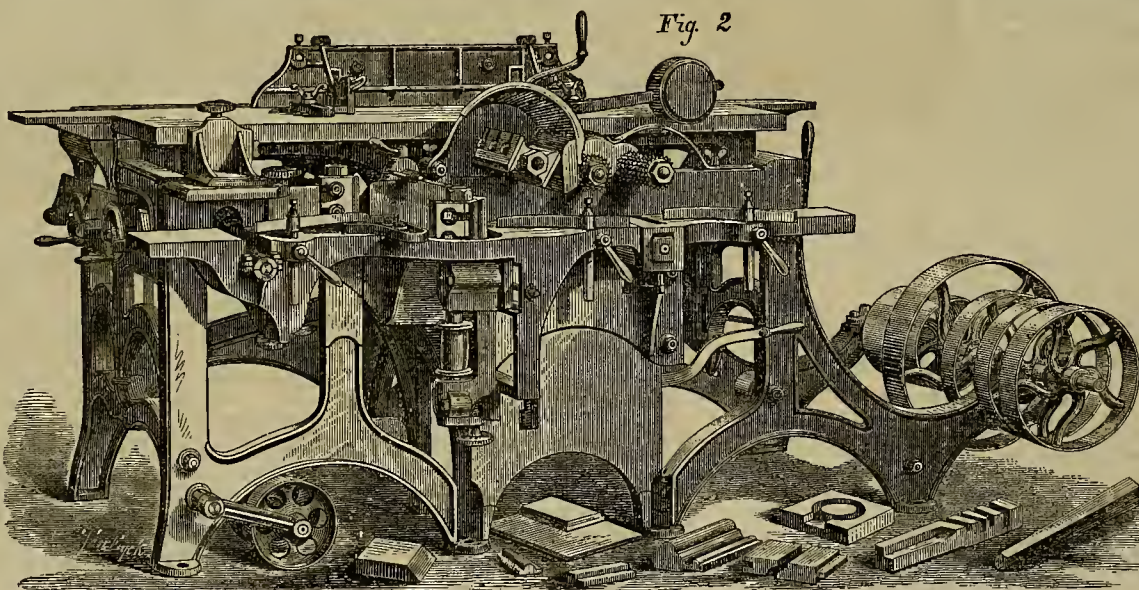


clines, *B*, which support the table. *D* is a fence, made of iron and capable of being adjusted to any angle with the table. As

forming work; capacity of taking the place of several machines; power to plane light or heavy stuff out of wind and finish it at

they may be of interest to persons at a distance who are unable to attend. They will be found instructive as well as entertaining, as important scientific subjects will be discussed.

Fig. 2



IMPROVED UNIVERSAL WOOD-WORKING MACHINE.

will be seen in Fig. 1, there are two independent tables one on each side of the cutter head, so that the piece to be planed rests on a solid surface on each side of the cutter bits, and is thus planed out of wind.

The "sticker" side of the machine shown in Fig. 2, is provided with boring, routing and other kinds of work above specified.

The machines are used extensively in

the same operation; economy of bench work, and the fact that two workmen can operate to advantage at the same time, doing different kinds of work.

There is no necessity of handling wood frequently in a shop where this machine is used, for it does not have to be carried from one machine to another to undergo different operations, for by changing the heads of this appliance it is readily adapted to the kind of work required.

\$22 per ton on iron. Freights from the Pennsylvania coal mines have also advanced, and the Chicago fire has greatly increased the price of nails. The effect of these advances is being already felt in the working of the mines and upon business generally.

"EXPLORERS', MINERS' AND METALLURGISTS' COMPANION."—Titles of chapters, etc., of this new and valuable work will be found in our advertising columns.

## MECHANIC ARTS COLLEGE.

The first lecture of a course to be given before the Mechanic Arts College was delivered on Saturday evening in the hall of the Mechanics' Institute by Prof. Carr. A report of the lecture will be found in another column although a synopsis such as we have space to give does not do full justice to its merit. We will continue to report these lectures in the order that they are delivered, trusting that

RISE IN THE PRICE OF COAL.—The recent increase in the price of coal, as well as rise in freights from England, will have a marked effect upon various branches of industry immediately dependent thereon. The following will show the difference in prices: old rates—Lehigh \$19; Pittston \$14; Pig Iron \$27. Present rates—Lehigh \$45; Pittston \$33; Pig Iron \$52 and \$55. This advance has been caused by the coal strikes in England and Pennsylvania. Freights from England have gone up from \$12 to



# MECHANICAL PROGRESS.

## THE VARYING EVAPORATIVE POWER OF BOILERS.

Most engineers are aware that a wide difference exists in the evaporative power of boilers—that it often occurs that two boilers built as nearly alike as the same machinists can make them, of iron of equal thickness, and, to all appearance, alike in quality and character, will under the same apparent circumstances of fuel, etc., perform quite unequally. The fact, we say, is very generally acknowledged; but the cause why it is so is a matter which has never yet been satisfactorily explained. The explanations usually assigned for this relative difference in evaporative power, are imperceptible differences of construction, values of fuel, modes of firing, etc.

Quite recently Messrs. Storer & Whelpley, of Boston, whose names have lately been quite prominently connected with experiments in the use of pulverized fuel, have undertaken another series of experiments, designed to thoroughly test the facts named above, and the cause thereof. In a communication to the *Scientific American* those gentlemen say:

"In order to discover this hitherto unknown cause, a series of experiments was made, based on the supposition that the conditions which affect the conducting power of a metal for electricity—alloys and impurities—would, perhaps in equal degrees, affect its power for transmission of heat.

Nine pieces of boiler plates of different brands were selected for the purpose of the experiment; they were of uniform thickness (five-tenths of an inch.) Some of them were samples of locomotive fire-box plate; and the others of boiler plate.

They were tested for their heat transmitting and steam generating efficiency, with the following results: Allowing the plate of lowest transmitting power to have a value of 100, we have

1	Power of transmission.....	100
2	" " " " " " " " " " " "	104.5
3	" " " " " " " " " " " "	117.7
4	" " " " " " " " " " " "	118.8
5	" " " " " " " " " " " "	121
6	" " " " " " " " " " " "	123
7	" " " " " " " " " " " "	123.3
8	" " " " " " " " " " " "	141.9
9	" " " " " " " " " " " "	144

It must be distinctly understood that these transmitting powers were measured by the generation of steam under equal and similar conditions. Each plate was subjected to a number of trials; the temperature of the flame to which it was exposed varying, during each series of trials, but a very few degrees from 550° Fahr., and the time of evaporation of the water but a few seconds.

The ratios of values have been calculated according to the tables for such purposes prepared by Dulong. The experiments have been conducted by Mr. Charles E. Avery, of Boston, a gentleman thoroughly competent by scientific and practical knowledge for the undertaking of such delicate work.

In order to discover and avoid all sources of error, the apparatus and method finally adopted for these determinations were first subjected to the test of weeks of most careful experiment.

To generate an equal amount of steam in equal times and with similar conditions of fuel and draft, boilers made of Nos. 8 and 9 plates would consume constantly 40 per cent. less fuel than boilers made of plates Nos. 1 and 2.

Insomuch, therefore, as their efficiency in the production of steam is vastly greater than that of the inferior plates, the commercial value of these plates will be still greater in proportion. The possibility of a daily economy of 40 per cent. of fuel should induce boiler users to purchase the best plate, and boiler plate manufacturers to exercise more care in its manufacture.

Some of the most considerable variations in evaporative efficiency were found between plates from the same manufactory.

No analyses of the iron of the plates have been made, it having been assumed that the comparative presence or absence of slag or glass—a poor conductor of heat—was the chief cause of the determined variations; though, doubtless, carbon and other elements will be found to exercise decided influences. These we propose to determine; and other points of novelty and interest in regard to boiler plates have been decided, which we hope at some future day to give to the public.

With our method of firing (our application of pulverized fuel to the generation of steam,) which almost entirely eliminates other causes of variation, we had

found one boiler to have an evaporative efficiency of nearly 60 per cent. more than another. Hence the search for the unknown causes of variation.

This is not the only instance in mechanics where such unaccountable differences have been observed. Musicians have observed that, of two violins as nearly alike as human skill can make them, one may be a valuable and the other a comparatively worthless instrument. Those who have studied the art of violin making attribute the difference in tone to unexplained peculiarities in the wood from which these instruments are made. \* \*

But while we are willing to concede that the quality of boiler iron may greatly effect its power to transmit heat, we think the difference in quality which produces such a result will be found to be mechanical rather than chemical, as Messrs. Whelpley and Storer would seem to think in their remark on the effect of alloys and impurities. At least we have no doubt that molecular conditions, not dependent upon chemical affinity, do effect the conducting power of metals both for electricity and heat.

It is certain that in many instances molecular structure has much to do with conducting power. Wood conducts heat with far greater facility in the direction of the grain than across it. Crystals are well known to exhibit similar variations, in conducting power, relative to the direction of their axes. Conduction is also known to be effected by the conditions of homogeneity or non-homogeneity.

Now as iron is more or less crystalline in structure, according to the thoroughness with which it has been worked, and the presence or absence of foreign materials, we are of the opinion that some of the variations observed by Messrs. Whelpley and Storer may be referred to the arrangement of these imperfect crystals of fibers in the plate, and perhaps to certain approaches to lamellated structure, consequent upon defects in manufacture.

Whatever their cause, if the differences be thoroughly established, they are of the utmost practical importance, and we trust the investigation thus begun will lead to such a general examination and discussion as will throw more light upon the important subject of economical steam production.

**RELATIVE VALUE OF BRICK VAULTS AND IRON SAFES.**—The Chicago fire has done much to exhibit the relative value of iron safes and brick vaults as places for the safe keeping of valuables. While the safes were comparatively worthless, the vaults generally preserved their contents in a perfect condition. Of course the condition of the safes was due more or less to the intensity of the heat to which they were exposed. Some safes came out all right, while others of the most improved manufacture, when opened, contained nothing but charred remains or a handful of cinders. There is not a safe in existence that could have withstood the ordeal in certain localities. Some of them, heretofore considered indestructible, were cracked asunder and the contents prematurely destroyed. The exterior walls are like so much rusty iron, and will chip off in great flakes, while the interiors of more than one of the larger safes were for some time after the fire so warm one's hand suffered when placed in contact with them. The conclusion unavoidably arrived at is that the best iron safe is not near so safe as a properly constructed brick vault.

**A SIMPLE RAILWAY PRECAUTION.**—To prevent a Revere disaster on their line, the managers of the Fitchburg Railroad, in Massachusetts, have provided their station-masters and flagmen with six-minute "hour-glasses." When a train passes, the glass is turned, and if a train approaches before the sand has run out, a red flag is displayed and the train stopped. As soon as the sand has run out the glass is turned again, and if a train comes before the sand is down, two flags—red and white—are shown, which indicate "proceed with caution." Afterward, a white flag shows the track is clear.

It is proposed to introduce a new telegraphic service in the German army for artillery in action. Experienced artillerymen are to be posted under cover far in advance of the batteries to watch the effects of the cannonade, and report back by means of a small portable telegraphic apparatus.

COLONEL H. YULE stated at the British Association meeting a short time since that the oak timbers which bound the walls of the palace Ctesiphon, in Babylonia, dating from the fifth or sixth century of our era, are still undecayed.

# SCIENTIFIC PROGRESS.

## Surface Movements of the Earth.

The old geological theory that from time to time the surface of the earth has been changed by grand catastrophes which, destroying plants and animals, were, on an immense scale similar to the local catastrophes produced by volcanic eruptions and earthquakes, has been abandoned by reasons of our more correct knowledge, founded on careful observations which investigators have been making for many years. These observations have proved that sudden catastrophes are always merely local; but that all the great changes in the surface of our earth, as the upheaval of mountain ranges and the depression of valleys and their ultimate change into lakes and oceans, are gradual and go always on, even at the present day.

The mountains bordering the Pacific Ocean, in fact the whole coast of California, are perpetually rising, and have probably been doing so for half a million of years, while all the land containing in its bosom our great American lakes is slowly sinking, with a probable corresponding upheaval of the State of Kentucky, of Southern Indiana and surrounding countries. Geological investigations prove that once our lakes had their outlets south, till by depression at the north a new outlet was formed, about forty thousand years ago, through Niagara to the St. Lawrence River. The division line of the lakes and the Mississippi Valley has been slowly traveling southward since that time; and when the city of Chicago recently turned the waters of Lake Michigan up the Chicago River into the Mississippi Valley, she simply re-established the old state of affairs, which, if the motion in question continues, will be more difficult to maintain in the future than it is now. Fortunately, this motion is very slow, and only a very remote posterity, some thousands of years hence, will meet with the difficulties we now foresee, and the head of the Chicago River becomes lower and lower in its junction with Lake Michigan.

It appears, further, that the State of New Jersey is sinking, and this is even participated in by the City of New York, Brooklyn, Long Island, etc., at the rate of some sixteen or seventeen inches per century. This is insignificant, to be sure; but let it only go on for a thousand years and it is some fifteen feet, so that the new stone docks now commenced in New York City at that time will be totally submerged; but then they will not probably last so long, and the soil of the lower part of the city may be very easily raised half a foot every thirty years. It is evident that the most correct data may be obtained at the sea shore, as the main height of the ocean possesses a perfect stability. This main height is, of course, obtained by continual observation of the tides under different circumstances, and if anywhere the highest tides reach a higher level than they did one hundred or two hundred years ago, it is a proof of depression or sinking of the land.

This depression is going on along the coast of Northern France, Belgium, Holland, and northwest Germany, while the coast of Sweden, along the Baltic, is slowly rising, including the capital of Sweden, the city of Stockholm.

The latest scientific journals report two very striking contemporary upheavals in Spain, entirely authentic. M. de Botello describes them in detail, and the most curious fact is that the short time of scarcely a quarter of a century was sufficient to produce an effect which has surprised every inhabitant who observed the circumstances formerly, and compared them with the present condition. In the province of Jarama, it is observed that from the village of Villar Don Diego, it is now possible to see the upper hall of the church steeple of Remiñares, in the province of Valladolid; whereas, twenty-three years ago, the summit of the steeple could only just be perceived. The same thing occurs to the same degree and under the same circumstances in the province of Alava, where from the village of Salvatierra the whole of the village of Saluende can now be seen, while in 1847 the vane of the church steeple could be hardly perceived. These four points are on a line parallel to the system of the Santerrois Mountains, while the extreme points are one hundred and forty miles apart.

All the movements we speak of here have nothing to do with volcanic eruptions; they are, of course, caused by changed conditions of the interior of the earth's mass, which by these facts is proved not to be

solid, the opinion of some modern geologist notwithstanding; the earth, if not liquid inside, must at least be soft and plastic, in order to make depressions in one place with simultaneous elevations in another.

One other interesting fact we must mention in this connection; it is that the highest mountains are not the oldest, as one would naturally suppose, but belonging to the system last elevated; so that the high Swiss Alps are much younger than the lower Shawangunk mountains.—*Exc.*

**AN INTERESTING EXPERIMENT.**—Dr. Chandler, in a late issue of the *American Chemist*, sketches an interesting experiment based upon the reduction of metallic silver from the nitrate. When solid nitrate of silver is placed upon glowing charcoal, deflagration takes place, the result being that the silver is left behind in the metallic state. The curious phenomenon attending the reaction is that the nitrate, being fused by the heat of the chemical action, sinks down into the pores of the coal, and as each particle of the latter is replaced by the reduced silver, the structure of the original wood is retained.

Dr. Chandler states that he has succeeded in this way in producing masses of silver weighing an ounce or more, which show most beautifully the rings of annual growth in the wood. The author directs that a crystal of the nitrate be placed on the end of a stick of charcoal, and the blow-pipe flame directed upon the coal beside it to start the reaction. As soon as the deflagration sets in, crystal after crystal of the nitrate may be added to keep up the supply.

**NEW MODE OF PREPARING SULPHURETTED HYDROGEN.**—This gas, a common reagent in many chemical operations, may, it is said, be conveniently generated by heating a mixture of equal parts of sulphur and paraffin (or with a larger proportion of sulphur) in a flask to a temperature not much above the melting point of the sulphur—sulphuretted hydrogen will be evolved with great steadiness. The author recommends the process as the most convenient of any yet devised for laboratory use. Where a pound of material is used in a suitable generating vessel, the evolution of gas may be prolonged for several days with great regularity. The production of the reagent can be stopped and renewed at pleasure by withdrawing or applying the lamp.

**INTERESTING ASTRONOMICAL DISCOVERY.** Professors Harkness and Hale, of the Washington Observatory, have lately succeeded in obtaining a spectrum of Encke's comet, now rapidly approaching its perihelion. The lines obtained indicate that the substance of this comet consists of a glowing cloud of gas—of what elements composed we are not informed, or indeed whether the spectrum showed it to consist of any of the elements known on the earth. The fact of the gas being in a highly heated condition, however, instead of existing at a comparatively low temperature is of itself an interesting fact—if such has been shown.

This comet is evidently undergoing great changes in its physical condition, as in 1829 it was seen with a light—intensity of 1.2. In 1868 it had a light of 2.2. On the 13th of October last, its light was 10. The present is about the most favorable time of its orbit to observe it, as it reaches its perihelion on the 29th of this month.

**CEMENT TO RESIST SULPHURIC ACID.**—Take caoutchouc; melt this by gentle heat; add from 6 to 8 per cent. of the weight of tallow, taking care to keep the mass well stirred; add dry slaked lime, so as to make the fluid mass the consistency of soft paste; and, lastly, add 20 per cent. of red lead, whereby the mass, which otherwise remains soft, becomes hard and dry. This cement resists, according to Dr. Wagner, boiling sulphuric acid. A solution of caoutchouc, in twice its weight of raw linseed oil, aided by heating, and the addition thereto of an equal weight of pipe-clay, yields a plastic mass which also resists most acids.—*Chemical News.*

**FELDSPAR ARTIFICIAL STONE.**—A new artificial stone is shortly to be introduced into the market, composed of feldspar or feldspathic minerals (previously vitrified), quick-lime, and flint. Hydrate of lime, it is claimed by Dr. Ott, will slowly replace the soda or potash of the feldspar, forming a compound like Portland cement. This reaction is accelerated by the presence of flint, which, according to Fuchs, contains soluble silica. The latter ingredient has a strong affinity for the alkalis of the feldspar.



## CORRESPONDENCE.

### Mines at Radensburg, M. T.

During my stay at Radensburg I visited the town of Keatingsville, about two miles distant, where the principal mines of this district are situated. It is a quartz camp, although there are a few placer claims, which are paying well.

#### Iron Clad.

This lode has been traced for over a mile on the surface. The shaft is 150 feet deep. There are two drifts running north and south from the bottom of the shaft, 130 feet. The lode will average  $2\frac{1}{2}$  feet in width, and is well defined. The ore, containing iron sulphurets, averages \$25 per ton, and there are 250 tons on the dump. The country rock is blue granite. With the most improved machinery the ore would yield a much larger per cent., but at present the milling facilities consist of arastras and copper plates. The hoisting is done by means of a horse whim, but steam-hoisting works are to be erected in the spring. This mine is owned by Mr. C. G. Hollback, a very energetic, public-spirited gentleman, and one who is much liked by all in the vicinity. Mr. Byron Ballard is foreman. The next mine I visited was this one owned by the

#### Nave Bros.,

on the same lode. I went down the shaft 100 feet to a level, and went south 150 feet. I found the miners busily at work. The ore is of the same character as that mentioned above. Mr. Nave informs me that from 20 to 50 per cent. of the gold is lost by the rude process by which it is worked.

#### The Ohio Lode,

owned by Blacker and Keating, has two shafts, the main one 80 feet deep. A tunnel has been run in 200 feet; the ledge averages four feet in width, and is one of the most promising mines in the district. They have been extracting ore for the last ten months.

#### The Keating.

I visited this very valuable property in company with the foreman, Mr. George Richards. The main shaft is 165 feet deep, and the other 130. Passing down to the second level, we go into the drift, a distance of 550 feet. The average width is 40 inches. They have run in on this lode, north and south, 1,300 feet, showing that it is a continuous vein, with well defined walls. I noticed that the ore changes in character at a depth of 130 feet. It is a decomposed quartz for that distance, easily milled, and from that depth the shaft passes through sulphurets ore for 45 feet. At this depth it is seven feet wide. From the surface down it has continued to pay, on an average, \$25 per ton. The northern portion of this lode carries more gold than the southern end. They extract 30 tons of ore daily, which is run through the company's 15-stamp mill. The mine has paid 50 per cent profit, over and above milling and mining expenses, since it was first discovered. The company intend, in due time, to put up the requisite machinery for working this class of ore profitably. The mine belongs to the pioneers of the district, Blacker and Keating. The results of the workings of the lode appear frequently in your "Mining Summary." Fifty men are employed by the above gentlemen in the development of their properties.

#### Placer Mins.

About 500 yards from this property is a small cañon, in which is located the claim of R. Thompson. During the week that I visited the place, \$5,000 were said to have been extracted from this claim. Being immediately below the ledges, it is evident that it owes its richness to the gradual decomposition and disintegration of these veins.

#### The Left-hand Lode.

In the first level, which is run at a depth of 60 feet, a splendid body of ore is uncovered. Two shafts have been sunk 150 feet apart, and are well timbered. From above the two levels, 600 tons of ore have been stowed out, which milled about \$35 per ton. The average width of the vein is two feet, and it shows throughout plenty of free gold. It is expected that at a greater depth the vein will widen out to three feet, as the real foot-wall is fully that distance from the hanging wall. Between

the foot wall and the casing, rich seams of ore are traced, one of which is three inches thick. This fine ledge is owned by Judge Clancy.

#### Allen Lode.

The shaft on this lode is 110 feet deep, and drifts have been run 400 feet. There are now 1,000 tons of ore on the dump, 50 tons of which, when worked, yielded 42 ounces of gold. There are many other locations in this district, among them the Washburn, Pennsylvania and

#### Tennessee,

which is located between the Keating and Ohio lodes, on the east slope of the hill. They are down 15 feet on a two-foot crevice. The ore is a decomposed quartz, and prospects well.

There are three small mills in the district, and Mr. J. F. Allen is building a new 6-stamp one, with a 10-horse power engine.

W. H. M.

### The Resources of Montana.

EDITORS PRESS:—From my observations here I am satisfied that stock-raising and especially the wool business is destined to be the future great industry of Montana. The bunch-grass, which grows in such luxuriance as to lose, in some places, its characteristic distribution in bunches or clumps, and to cover the whole surface with continuous pasture, is famous as a nutritious and fattening food for stock. Cattle and horses are turned out upon it at all seasons, even in the winter, and improve in condition while grazing. This grass dies early, but retains its nutritious properties all winter. It thus constitutes a standing hay—only it is much better fodder than hay, and almost like grain in its effect. There are a good many horses in the Territory now and more attention is given to breeding; and in a few years this Territory will furnish, I am convinced, a stock of serviceable blood, worthy of the great advantages Nature has bestowed upon the stock-raiser here.

The grass to which I have alluded makes excellent beef also. The herds in some of the valleys amount to 5,000 or 6,000 head. There is a great demand still for oxen as well as cows; and Montana is importing cattle, as well as receiving into her ample grazing lands the stock of other States and Territories.

It is estimated, that 20,000 head of cattle and other stock were imported into Montana this year. They tell me that they have not had to feed their cattle during the last three or four winters. They thrive and grow fat on bunch-grass, as do the buffalo of which it is calculated there are at least 100,000 in the Territory. Beef here at present is worth 25 cents per pound.

#### Sheep and Wool.

There is no better country than this for raising sheep, and this business is being engaged in quite extensively. Messrs. Poindexter & Orr, of Beaver Head Valley, recently shipped to the railroad at Corinne, 13,000 lbs. of wool. This firm are the leading stock-men of the Northwest, and their vast herds show superior classes of cattle, horses and sheep. Mr. Ed. Larabee, a stock-grower in Deer Lodge county, has purchased 1,400 head of sheep and will engage in sheep-raising extensively. Mr. David Pattee arrived in Deer Lodge last week from Oregon, with a drove of 2,500 head of sheep which he purchased in that State. The sheep business is one of the most remunerative in the Territory, and Montana promises in a few years to be one of the first wool-producing regions on the Pacific slope.

#### The Climate.

The climate of Montana is delightful, and in winter as well as summer the air is pure, dry, healthy and exhilarating. There is no fever and ague or other diseases incident to damp and changeable climates. The mean annual temperature is the same as that of Pennsylvania, and the mean elevation of the valleys of the Territory is not over 2,500 feet. The fall of snow is not over half the annual fall in New England.

#### Altitude of the Principal Towns.

Helena is 4,300 feet above the level of the sea; Fort Benton, 3,000; Virginia City, 5,400; Deer Lodge, 4,000; and Missoula, 3,300.

#### Timber.

One-fourth of the area of Montana is well timbered and the supply is inexhaustible. It consists principally of white and yellow pine, hemlock, fir, cedar and cot-

ton-wood. There is no hickory, oak, beech or maple.

#### Building Material.

There is an abundance of blue and white limestone, sandstone and fine marble. Good clay for bricks is abundant, and fire clay is found in many localities. Bituminous coal of good quality has been discovered all over the Territory.

#### Agriculture.

All the cereals grow to perfection and the vegetables are not excelled anywhere. The climate is also well adapted to the growing of hemp. The soil is dark, vegetable mould, of great richness and fertility. The subsoil is a clay or clay mixed with sand, and is very porous without being epongy. The value of farm products of Montana for the year 1869 aggregated \$3,925,000, of which amount the wheat crop gave \$900,000, barley and oats \$500,000 and potatoes \$1,000,000. Strawberries, gooseberries, raspberries and currants grow wild in the valleys and along the borders of the streams.

#### Irrigation.

Irrigation here is a necessity for the raising of full crops. The method adopted is to get the wheat into the ground as early as possible in the spring, and turn the water on, when the grain is about four inches high.

#### Mining.

Mining is the chief business of the country. There are some 40 quartz mills in the Territory, erected at a cost of over a million dollars. Placer mines, however, yield the greater proportion of the gold production, and capital to the extent of several millions has been invested in ditches, flumes and hydraulics. Copper, iron, lead and cinnabar have also been found in paying quantities.

#### Railroads.

The early completion of the Northern Pacific Railroad, which is now a conceded fact, will do more to open up the resources of the Territory than any other improvement. The railroad which will be constructed from Ogden on the Central Pacific north, will also develop a rich region of country and inaugurate a new era of progress in Montana.

W. H. M.

### The Ogden Tin Bubble.

EDS. PRESS:—In your edition of the 25th November, when referring to the reputed tin discoveries at Ogden, you show commendable caution in not implicitly accepting the reports so industriously circulated; for all but a few fanatics are now satisfied that no such metal as tin has up to the present time been discovered in Utah. You express a desire to see some of this notable tin-bearing rock, but really, gentlemen, the question is not what to send you, but what not to send you, for all kinds of rock, syenites, schists, gneiss, elvanite, zinblend, hornblend, magnetite and even red hematite have been hawked about town not only by ignorant agriculturists, but by men whose education should have taught them better, and called tinstone. The extent of the excitement and the long continued credence given to the false statements of designing speculators, made your correspondent think for a time that perchance a small percentage might exist in some of the rock and that from want of knowledge poor samples had been selected and shown to him; so to satisfy himself he called upon a well-known notary public interested in the discoveries, who produced a piece of rock-syenite from the famous Star of the West, and a bar of metal, solder, said to have been extracted from rock similar to that exhibited and he was informed that chemists in Washington and New York had found by analysis in samples sent to them as much as 70 per cent. of tin. When that quantity or even the compromise 30 per cent. was called in question on account of the low specific gravity, and other physical characters of the syenitic rock, the mild suggestion was made that "the experience gained in other parts of the world was useless and inapplicable in this." The joke is too good to be lost. For the idea is certainly original that the laws of nature in monarchical countries cease to exist in countries under the rule of free and enlightened republican governments. He further heard of another new and startling property of tin, one which was particularly dwelt upon to ac-

count for the non-success in finding tin of the assayers throughout the country; which was, that tin sublimed at a temperature of 230° Fahr., and that assayers using a heat greater than this—silica, recollect, present—had sublimed the tin. But the secret of the means employed to raise the cry which bye-the-bye did not raise the wind, remained to be divulged by the original locator the i-tin-erant Dr. W., who, on finding his little game unsuccessful, acknowledged that pulverized solder was slyly mixed with the powdered rock, and to keep the globules which formed on heating from oxidizing, bacon fat or resin was added and called this flux. And now that the "ham-fat man" has gone south, let us hope, with his departure, both hard and soft solder have returned to their proper duties and that we have heard the last of tin at Ogden.

H. E.

### Sage Brush Ashes a Fertilizer.

Something may be learned sometimes where least expected. In the Humboldt Valley, living at one of the old stage stations, four or five years ago, was a family who made a fine garden from year to year, around the station. Sage brush growing large and vigorous was all the resource for fuel.

The wife desiring to cultivate a few vegetables and try the experiment of growing strawberry vines, had the soil broken close by the house, and while sitting out her plants found that a portion of the same had become mixed with the ashes that had been thrown there. She became dubious about the welfare of the plants, and set the most of them on a portion of the ground free from ashes; but having a few left, and not wishing to throw them away, she set them, with no expectation of seeing them live, where the ashes were mixed with the earth.

As the season advanced, the plants thrived, blossomed and bore fruit; but the few set out as she called it "in the ash bed" produced amazingly, and far excelled the others in quantity of fruit.

The next year the same family planted a large area of ground to vegetables, and to try the experiment, scattered the ashes of the sage brush which they had been saving all winter, plentifully over the soil. The result was larger vegetable and greater quantities than they had ever raised before. This may be an important fact to those who are clearing up the sage brush land preparatory to its cultivation.

The above furnishes another evidence of that which has long been foreshadowed that the large tracts of land in Nevada, Idaho, and elsewhere, that produce an abundance of sage brush to the exclusion of almost everything else, may yet bring forth an abundance of vegetable and cereal products, and be found to possess all the qualities of soil necessary to make them a paradise for farmers.

Along the banks of the Truckee are found many flourishing little farms, and from year to year the sage brush disappears and the progress of cultivation leaves its footprints in soil that has been considered unproductive and useless. Strawberries especially are found to be well suited to this soil and climate. The much despised sage brush may be found to be useful in more ways than one yet.

### Los Angeles Walnuts.

The first English walnuts were planted in Los Angeles county in 1857. They commenced bearing in three years, the crop increasing every year. In the year 1863 the crop amounted to 9,200 pounds. Previous to 1860 the walnuts used in California were all imported from China and Chile to the amount of nearly 30,000 pounds annually.

The flavor of the walnuts raised in Los Angeles is finer than that of the imported nuts. Near San Gabriel, or the Gabriel Mission, the walnut tree is found of larger size and bearing the best of nuts. These trees were set out by the missionaries. Los Angeles county supplies a large demand for walnuts, and as Southern California becomes more settled, walnut trees will be grown more extensively adding an increased resource of wealth to this delightful portion of our State.



# MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**RICH STRIKE.**—Alpine Miner, Dec. 2d: During the week a very rich strike has taken place in the Exchequer mine. Native silver, may be seen all through the rock. The strike is so valuable that the Manager thinks of putting the old mill on Silver Creek in better order and keeping it running through the winter.

### AMADOR COUNTY.

**NEW STRIKE.**—Amador Ledger, Dec. 9th: A rich strike was recently made in placer diggings in the vicinity of Drytown that bids fair to be remunerative and lasting.

**LITTLE AMADOR MINE AND MILL.**—This mine is being rapidly developed; the main shaft is down nearly 400 ft., and still progressing. The ledge is well defined to the lowest depth reached, and the rock taken out in sinking is rich. The mill connected with the mine, will be completed and ready for crushing about the middle of January.

**PAUGH MINE.**—Work is being vigorously prosecuted. The main shaft has been sunk 100 ft., deeper, and the rock taken out in sinking looks remarkably well. The ledge is well defined, with all the indications of a paying mine.

### BUTTE COUNTY.

**COARSE GOLD.**—Butte Record, Dec. 2d: We were shown, the Chief, dry a large and valuable specimen of coarse gold, taken from claims in the vicinity of Forbestown. Another large specimen weighing 78 was picked up last week in the claim of Hunter, Clopperhaven & Co., on Ohio Flat. This Co., also cleaned up in 2 days run 50 ounces.

### LASSEN COUNTY.

**PROVIDENCE MINE.**—Sage Brush, Dec. 2d: D. Knoch, of Susanville received \$10,000 in retorted gold dust, on the 22d ult., the result of one week's run by the Providence Co.'s mill at Hayden Hill. As the mill has but 2 or 3 stamps, the ore must have been very rich.

### NEVADA COUNTY.

**NORTH SAN JUAN.**—Nevada Transcript, Dec. 9th: The claims of Davis, Bower, Beach, and others are paying well. These claims embrace a large portion of San Juan hill, and are among the best.

The claims known as the Dutch Co.'s on the west end of San Juan hill, idle for 3 years have started up again with good prospects.

Should there be a wet winter the old Wisconsin company will commence washing.

The claims of J. Billings, on the south side of the Middle Yuha river, are being put in good trim for washing this winter.

**SEBASTOPOL.**—The American Co.'s claims are paying splendidly. A large tunnel is being rapidly pushed into these claims which, when completed, will be able to carry through it almost every foot of gravel from where they are now washing, clear to the town of Sweetland, distant 1½ miles. There are 50 men employed.

**PRITTSBURG MINE.**—We learn that this mine is yielding as well as ever, while it is improving in character as development progresses upon the ledge.

**NEVINS & Co.**, who operate on Lost Hill have their pipe all laid and turned on water last Friday.

**QUARTZ LOCATION.**—J. McLaughlin and others comprising the Pine Grove Co., have located 18 claims of 100 ft., each, on a quartz ledge on Cincinnati Hill, in a northerly direction from Rocky Bar, in Grass Valley township.

**COMPLETED.**—The new engine, battery and stamps, to be added to those in use at the Pennsylvania mine have been completed, and full work will be resumed immediately.

**BUCHANAN MINE.**—A crushing of 20 tons of quartz made at the Oriental mill, was cleaned up on Saturday, and yielded \$26 to the ton. The Buchanan ledge is a short distance above the Oriental mill, near Deer Creek.

**BUCKEYE CLAIMS.**—These claims, situated about three-fourths of a mile from the town of Sweetland, are panning out as well as ever.

**OMEGA.**—Tully, Hinds, & Kidd have about 2,400 ft. of pipe laid, and will use 1,800 inches of water. Fuller, Pease & Co. have about 1,000 ft. of pipe down, and will run 750 inches of water. Evans & Co. have about 600 ft. of pipe down and will use about 600 inches of water. S. Kyle has about 500 ft. of pipe laid and will use about 500 inches of water.

**LOCATIONS.**—The Grecian Bend Co. has located 1,000 ft. on a ledge about 4 miles from Grass Valley, on the east bank of Wolf Creek.

Peck and others have located 10 claims of 100 ft. each near New York cañon.

Lyons and others have located 10 claims of 100 ft. each below where the road crosses New York cañon.

**NEW YORK HILL MINE.**—Grass Valley Republican, Dec. 9th: A contract was let yesterday to miners for working the fourth level of the mine.

**MANHATTAN MINE.**—About 30 tons of rock have been hauled to Ben McCauley's mill at Boston Ravine. The last lot from the Manhattan averaged \$37 a ton, and the present lot promises to do still better. The ledge is about 15 inches thick.

**EUREKA MINE.**—Grass Valley Union, Dec. 6th: Gold valued at \$19,000 was yesterday shipped from the Eureka, for 2 weeks run. The mill has been running with all its 30 stamps.

**HOPE GRAVEL MINE.**—The Hope mine, for Nov., took out \$10,000 worth of gold, and the expense for the same period amounted to \$2,500.

### SAN DIEGO COUNTY.

**BULLION.**—San Diego Union, Dec. 3d: There was shipped yesterday to S. F., bullion amounting to \$4,130, from Julian and Banner Districts.

### TRINITY COUNTY.

**DOUGLAS.**—Cor. Trinity Journal, Dec. 9th: Marshall, Reed & Co. are driving through the hill, and are making fair progress. The tunnel is in nearly 500 ft., which leaves about 300 ft. yet to be completed.

McWilliams & Foley are fitting up a claim on Union Hill and will work a place where but little prospecting has yet been done. On the opposite side of the gulch, Brannan & Henge will re-open an old claim which was laid up for want of dumping ground 10 years ago. The claim paid well at the time and there is good ground left in it yet.

### TULARE COUNTY.

**WHITE RIVER.**—Cor. Visalia Times, Dec. 2d: Biggs and McNulty are taking out good pay rock on the Sarah Tucker lode. Mr. Mulby is running his claim and taking out rich rock. Mr. James is building an 8-stamp mill. He intends incorporating on the Warsaw the Clinton and extension of the Josephine. These are 3 large well defined lodes, cropping out boldly. They are in a slate formation, and have well defined walls. One of them, the Warsaw, crops 4 ft. above the ground and shows free gold. The other 2 show gold plentifully and pay well.

### TUOLUMNE COUNTY.

**GRIZZLY MINE.**—Sonora Democrat, Dec. 9th: The prospect is splendid for large yields in the future. For considerable time work was prosecuted for the purpose of finding the lead that was thought to be dipping to the north, but it has recently been found dipping toward the south. A vein 6 ft. in width is now exposed.

## Nevada.

### COPE DISTRICT.

**MOUNTAIN CITY.**—Elko Independent, Dec. 9th: The El Dorado is yielding richer ore than ever before, at 100 ft. deep, while the quartz taken out of the Excelsior at a depth of 130 ft. is "disfigured" all over with native silver and horn silver and the richest of black sulphurets. Most of this ore assays over \$100 per ton. The developments made in the Excelsior tunnel and shaft, indicate that the rich chimney extends not less than 400 ft. on the ledge. It is very rich at a depth of 130 ft. The quartz coming out of the El Dorado shaft is roughly "contaminated" with silver sulphurets and pyrites of iron carrying silver, much of it being very rich in silver with gold in quantities, at least \$10 or \$15 per ton. The El Dorado is about 5 ft. wide and the Excelsior about 3 ft.

A new ledge, the Sophia, has been discovered on the north side of California Creek, about 75 ft. below the St. Nicholas, and the locators have sunk on it 25 ft. It is a 2-ft. ledge and the very finest of silver sulphurets are thoroughly disseminated through the ore.

The owners of the Independent have a large shaft house erected and a hoisting whim, and are prepared for operations through the winter. At a depth of 125 ft. the ore is as rich as ever and large quantities are in sight in the drifts.

Operations on the Monitor, Kanawha, Emmett and some other rich ledges are suspended for the present.

**PENNSYLVANIA COAL MINE.**—This mine is about 20 miles northeast from Elko. A vein of coal 4 ft. wide was first struck in a shaft at the depth of 8 ft. from the surface. Since then a tunnel has been run for 200

ft., cutting, in the space of 100 ft., 5 distinct veins of different width—amounting in all to 60 ft. in width of coal resembling the best of Rocky Mountain coal.

**LUCRN.**—A smelting furnace of the most approved style has been completed and is running out bullion. The blast was put on yesterday, and the result of the first 21 hours' run was 21,600 lbs of bullion.

The Tecoma mine is looking better than ever, and is in shape to yield sufficient ore to keep the furnace running.

The Jeremiah Thompson, at a depth of 28 ft., shows a 7-ft. vein of ore which is sacked for shipment as fast as it is taken out.

The Lucy Emma has a shaft 100 ft. in depth, and at that depth shows a vein 6 ft. in width, of dark gray carbonates and crystallized galena ore, and bids fair to rival the Tecoma.

The Helen, at a depth of 35 ft., shows 6 ft. of good ore.

Roberts & Small own a claim which at a depth of 44 ft. shows a clay seam 4½ ft. wide, and a seam of ore 3 ft. in width. The clay is sold at \$4 per ton on the dump of the mine.

The Kentuck, at a depth of 17 ft. shows a vein of solid high grade ore 3 ft. in width.

### EUREKA DISTRICT.

**WILL START UP.**—Eureka Sentinel, Dec. 6th: The Pinto Mill will be ready to go into operation next week.

**LEMON MILL.**—Mr. Crandall informs us that he will get the Lemon mill ready for operation on or before Christmas.

**SHUT DOWN.**—The reduction works of the Eureka Cons. have closed down for a general clean up and overhauling. They will not fire up again until this first of the month.

**MINERAL HILL.**—The new mill of the Mineral Hill M. Co., just completed, has been compelled to shut down, after a successful run of 4 days, in consequence of some part of the furnace giving away.

**LOOKING WELL.**—The new developments on the Gen. Lee Cons. are looking better. In shaft No. 2, at the north end of the mine, the ore is 3 ft. in width, and widening as depth is attained. It is of high grade.

**GEN. LEE CONS.**—We visited this property on Sunday last, and found the various developments along the main lead much improved in the showing of ore since our former visit. In addition to the tunnel, open cuts and other workings, 3 new shafts have been started, and 2 shifts of 10 men are driving on them satisfactorily. From the initial point of the Ozark location, north to the top of Adams' Hill, a distance of about 800 ft., the continuity of splendid high grade milling ore has been demonstrated. The 2 new shafts are in excellent ore, and the ledge is constantly widening and improving in appearance as depth is attained. It seems probable that the northern portion of the vein is more valuable than the mammoth fissure disclosed further down the hill in the tunnel and other workings near that point. One of the new shafts is down 15 ft. and the other 8 ft. The ore obtained from both is of a superior quality. The supply appears abundant.

### ELY DISTRICT.

**BULLION.**—W. F. & Co. shipped since Nov. 30th, 57 bars valued at \$93,607.98.

**NO. SEVEN.**—No. Seven, of the Meadow Valley, is now the deepest shaft in the Dist. By the incline, it is down 497 ft., following the ledge, which stands nearer vertical as a greater depth is attained.

**WASHINGTON & CREOLE** are down 133 ft. and have drifted both ways the entire length of the claim, following the vein all the way through rich rock. A whim house, 34x60 ft. is being erected over the shaft.

**RAYMOND & ELY.**—Over the Lightner shaft, of the Raymond & Ely mines, is being put up, the first engine for hoisting ever erected in Pioche. The boilers are 12 ft. in length and 36 inches in diameter with two 18 inch steam drums on top, connected with mud drums of the same dimensions at the bottom.

**MOLKE MINE.**—This claim in Spring Mt., near to the Desdemona and Ivanhoe, is looking well throughout. The main shaft is down 100 ft. perpendicular, and still sinking. The indications are flattering as depth is attained.

A new discovery called Chief of the Hill, has been made near the American Flag mine. It has been sunk upon to the depth of 5 ft. and makes a pretty good showing.

**ONEIDA.**—We were shown some very rich rock taken out of this mine at a depth of 73 ft. The mine is a short distance east of the Lightner shaft.

**INGOMAR.**—In the shaft now sinking a body of chloride was struck at a depth of 150 ft. on Friday last. The mine is about 300 ft. west from the Lightner shaft. The

owners are very hopeful, one of them refusing \$1,000 for 50 ft. The ore struck is of a very rich character.

**NEW MILL FOR THE RAYMOND & ELY.**—The machinery for the new 30-stamp to be erected by this Co., arrived at Bullionville a few days since. This will give the Raymond & Ely Co. 50 stamps—30 more than at present.

### HUMBOLDT.

**BULLION.**—Unionville Silver State, Dec. 9th: The amount shipped from the Arizona mine, since our last issue, was \$6,384.

**ORE.**—The Eclipse M. Co. are delivering 10 tons of ore at the Pioneer mill, for reduction.

**UNIONVILLE.**—Cor. Humboldt Register, Dec. 9th: The mines have never looked so well as they do now, and new discoveries are being made in this Dist. There are 4 mills running night and day, 2 of which are working tailings. The Arizona mine is being well developed, and continues to show large quantities of black sulphuret ore all of which is shipping rock. They have 18 men at work. The new tramway is a complete success, and is a great saving. Its length is 1,900 ft.

The Eclipse mine is in about 100 ft. in the side of a large mountain, from the main tunnel, and still continues to drive ahead. The vein is 4 ft. wide, and of the same grade as the Arizona. Three ft. of this ore is good for shipping, and the remainder for milling. The Co. have 4 men engaged.

The owners of the Peru mine are engaged in driving a drift 70 ft. long, at which point they intend to strike north and south on the ledge. D. Van Lennep, of this place, has bought of the Peru Co., 30 tons of ore on the dump, at \$25.00 per ton.

### REESE RIVER.

**GOOD ORE.**—Reese River Reveille, Dec. 4th: The owners of the Sabrook mine have had another crushing of ore. It was worked at the Manhattan mill. The first class yielded \$1,400 per ton and the second class returned between \$300 and \$400. This rock was found at a depth of about 130 ft.

**BULLION FROM THE METACOMB MILL.**—We saw this morning at the banking house of Paxton & Co. 5 bars, 374 lbs., valued at \$4,987.32 from rock from the Pacific M. Co.'s Mine.

**MONITOR ORE.**—Sixty tons of fine ore from the Monitor mine, Belmont, is being worked at the Manhattan mill.

**BELMONT BULLION.**—W. F. Leon, Agent for the El Dorado South mine, shipped to the Bank of Cal. during Nov., 63 bars, valued at \$29,632.03, all from the El Dorado South.

**MORGAN AND MUNCEY MINE.**—The Manhattan Co. have come into possession and set to work to repair damages and to give it a thorough and systematic working. The machinery will be ready to start up about the first of next week.

**BULLION FOR NOV.**—W. F. & Co. shipped during Nov. 135 bars, 11,195 lbs. of the value of \$122,868.19. With the exception of 5 bars, it was all from the Manhattan mill and the Stetefeldt mill at Belmont which has been leased by the El Dorado South Co.

### WASHOE.

**BULLION SHIPMENT FOR NOV.**—Virginia Enterprise, Dec. 8th: There was shipped from W. F. & Co.'s during Nov. 534 bars, 39,832 lbs., worth \$905,022.69.

**BELCHER YIELD.**—During Nov., 5,700 tons of ore were sent to the mill from the Belcher mine. The ore at this mine is looking well, and assays from \$70 to \$100 per ton. Calling the yield \$85 per ton, the total yield of the mine for the month named would be \$483,500.

**KENTUCK.**—This mine is yielding well and is keeping a couple of mills going though they are working day shifts only. The Co. shipped \$6,212.82 in bullion last week.

The Savage mine yielded 2,783 tons of ore, assaying \$31.70 per ton, or a total of \$78,221.12, during Nov.

**CONS. VIRGINIA.**—Work is still progressing. Drifts are being run both to the north and south, but as yet no paying ore has been found.

**RESUMES.**—The Ramsdell & Thompson mill, on Gold Cañon, below Gold Hill has again started up. It goes to work on ore from the Woodville lead, a promising vein which crosses Gold Cañon under the Pacific mill, and which from the first has yielded paying ore.

**CARSON MINT.**—During two and a half days—Saturday, Monday and Tuesday forenoon—there was received at the Carson Mint over 4 tons of bullion; valued at upwards of \$350,000.

The thorough ventilation of the Crown Point mine has been secured by con-



necting the 3 lower levels by means of winzes.

#### WHITE PINE.

**BULLION FORWARDED.**—White Pine News, W. F. & Co. shipped to New York 11 bars 655 lbs., valued at \$11,056. Also for the Eberhardt & Aurora M. Co. 3 bars of bullion valued at \$3,962.52.

**GLACIER.**—As the Great Basin M. Co. intend suspending operations for the winter, we paid a visit to this mine. The Osborn shaft is about 60 ft. deep, following a spar seam, with more or less ore throughout. At 25½ ft. from the surface there are 3 drifts: the first is 23 ft. in length, running north, and shows a body of ore averaging 2½ ft. in thickness and 20 ft. along the drift. At the end of the drift there is a second drift 22 ft. in length running through vein matter, and along the north side throughout its entire length is the wall which, from its dip and strike and general appearance, is deemed to be a continuation of the well known north wall of the Eberhardt. The third drift, running southeast 15 ft. in length and 7 ft. below the level of the above named drift, shows a continuation of the same rich ore body. The Miller shaft is sunk to a depth of 55 ft. and at a depth of 30 ft. there is one drift running in a westerly direction into a large chamber, showing a breast of ore on the west side about 30 ft. in length and 8 ft. in height, from which a large quantity of first-class ore has been taken. The ore last taken out averages \$175 per ton. The Slauson shaft is 25 ft. in depth, and at the bottom has 2 drifts—one running north 15 ft. through vein matter, and the other running east 32 ft. showing a body of ore 2 ft. in thickness throughout its length. The ore from the blast and cut averages \$200 per ton. They have about 230 tons of assorted high-grade ore, and several hundred tons of low grade ore on the dumps.

**EBERHARDT.**—Work in the open cut was again interfered with by the weather. The Keystone drift from the shaft is going ahead and shows an improved appearance in the face.

**SILVER WAVE.**—Fleming is pushing work ahead with energy. The Lyford shaft is down 60 ft. and through the spar seam. The thickness of the spar seam at this point is about 16 ft. An incline has been started to follow the seam. The Perkins shaft is down 30 ft. No. 4 shaft is down 110 ft. on the foot wall and running east.

The indications at this point are favorable. The men in the Chenoweth shaft are cross-cutting for the purpose of tapping a solid body of ore matter ahead.

**ASBURY TUNNEL AND WORKS.**—The main tunnel is in over 300 ft., and the indications are improving as headway is made. The 2 side drifts are looking well.

**SAN JUAN DEL RIO.**—This mine is in Mahogany Cañon, not far from the Eberhardt. Capt. Boyle, the Supt., will commence operations on Monday.

**EAST SHEBOYGAN.**—A new strike was made this week in the face of the South original tunnel; also in the bottom of the East Exchange incline. A force of 26 men is employed, nearly all of whom are sinking and drifting to make connections. All the workings of the mine are improving in appearance.

**NOONDAY.**—The body of ore in the breast has increased since last mention. A crushing at the mill averaged \$114 to the ton.

**EDGAR.**—The drift which has been going ahead from the 110-ft. shaft has already cut through 40 ft. of ore and ledge matter. As yet the thickness of the ore-body is unknown.

**SOUTH AURORA.**—There are 2 shifts now at work in the main tunnel, making fair headway.

**ICEBERG.**—The whole force of men, with the exception of those employed on top, are breaking down ore in the breasts.

**OUTSIDE DIST.**—SCHELL CREEK RANGE. El Capitan, Sweepstakes, Excelsior and Nutmeg, have been purchased by Col. Sidney, who is in New York perfecting arrangements for erecting a mill and opening the mines.

**ROBINSON DIST.**—The furnace started up on ore from the Springfield, Carbonate and Freeborn mines, running through 70 tons of ore, from which 12 tons of bullion were obtained. The Badlam, Altovido, Lamb and other mines are showing well as far as opened.

#### Arizona.

**PINAL MINES.**—Tucson Citizen, Nov. 25th: The Silver Queen ledge is 4 ft. wide. It contains copper, antimony and silver, but more than half silver. The owners have sunk a few ft. deep on the ledge and find ore improving. Thirty men are out there prospecting and making discoveries every day.

**MINES AND MINING.**—Arizona Miner,

Nov. 25th: Except on the Tiger lode work has been suspended for the present, and will not be renewed until spring. On the Tiger, however, 8 or 10 men are still at work drifting and tunneling at the bottom of the principal shaft.

Nearer Prescott much activity is being evinced, in the work of opening up new discoveries. Kelly, Alexander and others, in Walker Dist. 8 miles from Prescott, for the past 3 weeks, have been sinking on the Cornucopia, Prescott, Bismarck and other lodes. Mr. Vorseley 5 or 6 weeks ago, effected a conditional sale of one of the above-named ledges, in S. F.

A party of men are preparing to sink a shaft on the Benjamin lode Walker dist.

**WALLAPAI DIST.**—The Lone Star mill, commenced work on the 10th. The ore was from the Lone Star lode.

A new ledge which promises rich, has been discovered in the Wallapai mountains, 30 miles from Mineral Park, and 16 miles from Beale's Springs.

Clarke & Co., about the 1st inst., shipped 5 tons of ore to S. F., which yielded \$2,200 to the ton.

#### Colorado.

**SHIPPED.**—Colorado News, Nov. 30th: The Stewart S. R. Co. have shipped for the week ending to-day 6 silver bricks valued at \$5,762.40, and also 4 lead bars valued at \$924.40.

We learn from Col. Gray that he has crushed, sampled and sacked, at the mill of the Trenton G. and S. M. Co. Silver Plume, during Nov. 40 tons of ore worth 668 ozs. per ton. The Silver Plume mine is looking remarkably well, and selected samples of ore taken yielded in London 3,054 ozs. per ton.

We have been favored with a sight of the certificate of the Stewart S. R. Co. of a mill run of Napoleon first and second class ore that yielded as follows: First class ore, 440 ozs. and second class ore, 105 ozs. per ton. The average yield of the crevice is therefore 292½ ozs. per ton. The crevice is large and averages from 10 to 12 inches of pay material. In drifting out the ore treated at Stewart's, the yield has been at the rate of \$8 per diem per man.

**LA CROSSE TUNNEL.**—Central Herald, Nov. 29th: The tunnel is 930 ft., into Quartz Hill. The last 100 ft. has been through an immense vein of low grade ore, running at an average rate of about 2 ozs. of gold to the cord.

Ore from the Trojan mine, Grand Island yields 8 ounces in gold to the cord. A quantity from the Boulder Co. lead was expected to yield 10 ozs. in gold per cord.

**B. S. BUELL** is successfully working the Illinois mine, which is yielding very rich ore. He will soon let contracts for the winter for sinking and drifting. Only smelting ore will be raised for some months; the mill ore will be left until spring.

**H. B. GROSE**, just returned from the so called tin mines at Ogden pronounces them a humbug. He brought samples of the ore, but Prof. Burlington and Von Shulz, on assaying, find it to contain no traces of tin.

#### Idaho.

**BULLION.**—Silver City Avalanche, Dec. 2d. W. F. & Co. shipped from here yesterday 3 bars, valued at \$4,713.95.

**MINING RECORD.**—Since our last issue 2 rich strikes have been made in the Golden Chariot—one in the 5th level about 340 ft. south of the shaft; the other at the bottom of the shaft in the 8th level. Last Thursday we visited the mine, and found the vein, just struck in the 5th level, to be nearly 2 ft. wide, with a pay streak from 18 to 20 inches in width of fine looking ore. In the 8th level, the ledge is 2 ft. wide, similar in character to that found in the 5th, fairly glistening with gold and silver. An immense body of rich ore exists between the 5th and 8th levels, south of the shaft.

The Elmore mill is cleaning up its run on tailings, after which it will crush a small lot of Mahogany ore. When that is done the mill will commence crushing ore from the South Oro Fino, now yielding from 15 to 18 tons per day—about 400 tons being now on the dump. Rich gold bearing ore is being found in the shaft at the south end of the claim which is down 70 ft.

The 7th level of the Elmore mine, 75 ft. north of the shaft, is yielding a fair quality of ore. The mine is being prospected in several other places, and the late strike in the Golden Chariot will encourage the Elmore Co. to resume sinking the main shaft. The Minnesota shaft is down 214 ft. and the Supt. will continue sinking it all winter. There are about 75 tons of ore at the mine which will be crushed in a few days and is expected to pay \$50 per ton.

The Mahogany shaft is down below the 4th level. After the shaft is well down, it is proposed to open up the 4th level and

get it ready for stoping out ore by the time that the shaft is down to the 5th level.

The ore in the lower level of the South Chariot has been improving in quality for the last few days. In the first level the ore is rich, but the vein too small for profitable working.

#### Montana.

**ELK CREEK.**—Deer Lodge New North West, Nov. 25th: The mines have closed down for the season. The claims of Kennedy & Co., M. Dooley and P. Brogan, above Yreka, were the only ones running this week, and they suspend to-day. They have splendid ground and have been making \$50 per day to the hand. W. W. Jones & Co. Plume Co., shut down the 16th, with good banks and good prospects for a successful run next summer. There are about 75 men in and about Elk, the most of whom will remain over winter.

**SLUICE-BOX ROBBING.**—On Saturday last, 3 boxes on the claim of J. Rodgers, Pilgrim Bar, were robbed. It is estimated the thieves got \$800. There were still \$800 remaining in the boxes. No clue to the perpetrator. Water was turned out of the Rock creek lake ditch on Monday. Mining is suspended. Yamhill almost abandoned, and Pike's Peak has relapsed into wintry somnolence.

**NEW SILVER LODE.**—Helena Herald, Nov. 30th: D. H. Gilmour is the discoverer of another silver lode which promises to attract attention. The lode has been opened, at one point, a number of ft. from the surface, and has been traced for 600 ft. The mine is some 5 miles north of Helena, and produces argentiferous galena of a rich quality.

#### Oregon.

**THE NEW DIGGINGS.**—Oregon Sentinel, Dec. 2d: We learn that the new diggings on Rogue River, 5 miles below the mouth of Applegate are prospecting well.

#### Utah.

**BULLION.**—S. L. Tribune, Dec. 7th: W. F. & Co., forwarded on the 3d, to New York, 9 bars, from the Meadow Valley Works, worth \$9,986.25, and received on the 5th, 10 bars worth \$10,314.95 from the same place, also for shipment to New York. On the 6th, they received 17 bars, 2,600 lbs. valued at \$50,700 from the Raymond & Ely, to be forwarded to New York.

**EMMA.**—A new deposit of ore has been struck of a high grade.

The 24-stamp mill being erected at Homanville, Tintic Dist., is expected to be ready for operations within 30 days.

**STAR DIST.**—The Sheandoah, is turning out particularly well.

The present owners of the Silver Cloud mine, Camp Floyd Dist., are piling up ore at Walker Bro's mill, preparatory to a run on the same. They expect to commence when they get 200 tons on hand. Meanwhile, the proprietors of the mill are rushing up their roaster.

**TINTIC.**—Cor. same: The Wyoming, half a mile east of Eureka Hill, is being worked steadily and developing most satisfactorily, the rock improving with every foot that is sunk. One shaft is down 150 ft.

The Mammoth is about a mile south of the Wyoming. The rock is almost pure copper. The portion owned by Armstrong, Atkins & Co., is about selling for a large sum.

From the Shower mine, they are shipping large quantities of ore to Salt Lake. This ledge differs from all the other mines in this dist., running almost east and west, and crossing at right angles the Hopkins, Joe Bowers and Silver Spar.

The furnaces, both here and at Homanville, are at present stopped.

**OPHIR.**—Cor. S. L. Review, Dec. 1st: The Kolar mine, about one mile northeast of the Brevoort mill, shows a vein 8 ft. in width, produces free milling ore with traces of gold. The average assay is \$98. The owners are extracting immense quantities of ore. The Crown Point, is on the north side of the canon, about one-fourth of a mile from the mill. The ore extracted is about the same as the Kolar, being free milling ore and assaying from \$75 to \$110. The owner has sunk a shaft about 10 ft., which shows a vein 16 ft. wide. Croppings on the surface can be traced 300 ft.

The Delatine, about one-fourth of a mile southwest from the Brevoort mill, shows a vein about 3 ft. wide, 25 ft. in a tunnel, and produces pure milling rock, black, and resembling decomposed slate, with streaks of chloride and white spar.

#### San Francisco Mining Stock Market.

THURSDAY EVE., Dec. 14, 1871.

Stocks have been active throughout the week. Sales at the Board for the week ending Wednesday 6th instant, amounted to \$1,447,600. Nearly 2,000 tons of ore were taken from the Crown Point mine last week, valued at \$60,000. For the month of November, 5,717 tons of ore were taken from the Belcher, yielding \$345,419 or \$60.71 per ton. The Nov. receipts of the Meadow Valley mine were \$156,423. The first shipment on December account amounts to

\$11,400. The Chollar Potosi dividend paid on the 11th inst. aggregated \$23,000. The amount of ore on the dumps of the mine is 1,300 tons and 2,746 tons are at the mill.

The November receipts of the Crown Point are about \$235,000, of the Savage, \$72,125, and of the Raymond & Ely, \$255,419. The North Star mine yielded in November, \$21,061, from 963 tons of ore.

Trustees of the War Eagle Mining Company were elected yesterday as follows: A. G. Hawes (President), C. W. Fox (Vice-President), Jas. S. Kennedy, John P. Couch and William R. Humphrey. C. F. Balcoln was continued as Secretary. The Company were incorporated on the 8th of September, 1871, with a capital of \$1,000,000, divided into 10,000 shares. The claim is at Silver City, Idaho Territory, near the Golden Chariot mine. About 400 tons of ore was milled last month, yielding \$15,000.

At the annual meeting of the Great Central Mining Company, of Humboldt county, Nev., held on the 11th inst., the following gentlemen were elected Trustees for the ensuing year: G. O'Hara Taffe (President), J. T. Boyd, John H. Turney, H. S. Tibbey, and J. Crownshield (Secretary).

**Comparative Prices—Extremes, Advance and Decline—S. F. Stock and Ex. Board.**

Dec. 8, Highest.	Lowest.	Dec. 14, Adv.	Dec. Decline.
Alpha.....	365	400	35
Belcher.....	5	4	—
Buckeye.....	34½	32	2½
Chollar Potosi.....	12½	13	½
Columbia.....	12	11	1½
Cons. Virginia.....	360	360	—
Crown Point.....	7	7	—
Eureka Cons.....	22	21½	½
Eureka.....	25	25	—
Golden Chariot.....	23½	18	5½
Gould & Curry.....	130	124	6
Hale & Norcross.....	135	113	22
Imperial.....	42	37	5
Ida Elmore.....	6	150	144
Kentuck.....	170	156	14
Mammoth.....	65	45	—
Meadow Valley.....	32	28	4
Ophir.....	27	24½	2½
Ophir, Hid. Treas.....	8½	8	½
Overman.....	21½	20	1½
Potosi.....	12½	11½	1
Raymond & Ely.....	79½	80	½
Savage.....	47½	46	1½
Sierra Nevada.....	—	2	—
Silver Wave.....	—	2	—
Wash. & Creole.....	5½	5½	—
Yellow Jacket.....	56½	53	3½
S. F. Electric.....	50½	52½	2
Seg. Belcher.....	22½	22	½

#### Latest Prices—Bid and Asked.

Alpha Cons.....	BID, ASKED	Ida Elmore.....	BID, ASKED
Amador.....	285 300	Imperial.....	40 42
Belcher.....	389 400	Kentuck.....	180 185
Chollar Potosi.....	22½ 23	Meadow Valley.....	28½ 30
Crown Point.....	330 337	Ophir.....	24½ 25
Daney.....	—	Ophir, Hid. Treas.....	7½ 8
Eureka Cons.....	21½ 22	Overman.....	23 23½
Eureka.....	21½ 22	Potosi.....	12½ 13
Golden Chariot.....	21½ 22	Raymond & Ely.....	79½ 80
Gould & Curry.....	—	Sierra Nevada.....	60½ 62
Hale & Norcross.....	126 128	Yellow Jacket.....	50½ 52

#### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

(Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.)

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT, OF SALE.
Alhambra Hill M. Co., Nev., Dec. 9, 50c Jan. 13-Feb. 5*	
Altona, G. Valley, Cal., Oct. 31, 25c.....Dec. 4-Dec. 26*	
Bellevue, Placer Co., Cal., Nov. 1, 1.....Dec. 6-Dec. 27	
Buckeye G. & M. Co., Nev., Nov. 10, 1.....Dec. 14-Jan. 2	
Can. Vir., Nev., Nov. 9, \$1.50.....Dec. 13-Jan. 10	
Chollar Potosi M. Co., Nev., Nov. 27, \$1.50.....Dec. 10-Jan. 15	
Eagle Quicksilver, Cal., Oct. 30, \$40.....Jan. 6-Jan. 18	
El Dorado M. Co., Cal., Dec. 7, 25c.....Jan. 16-Feb. 6	
Ely Consolidated, Nev., Nov. 27, 50c.....Jan. 8-Jan. 30	
Emerald Hill M. Co. S. L. Co., U. S., Nov. 3, 10c.....Dec. 11, Jan. 2	
Golden Chariot, Idaho, Nov. 15, \$3.....Dec. 23-Jan. 15	
General Lee S. M. Co., W. F., Dec. 5, 10c Jan. 10-Jan. 30	
Phoenix M. Co., Eureka, Dec. 8, 25c.....Dec. 10-Jan. 15	
Keams' W. Ex. Co., Cal., Oct. 21, \$5.....Nov. 27-Dec. 26*	
Kincaid Flat M. Co., Dec. 11, \$2.50.....Jan. 17-Feb. 7*	
Knickerbocker M. Co., St. Roy Co., N., Dec. 4-50c Jan. 7, 26	
Lillian Hall M. Co., Ely Dist., Nov. 18, 50c.....Dec. 27, Jan. 23	
Magnolia, Eureka Dist., Nov. 27, 25c.....Dec. 29-Jan. 19	
Mahogany M. Co., Idaho, Nov. 11, 1.....Dec. 19-Jan. 10	
Meadow Valley, Ely Dist., Nov. 27, 50c.....Jan. 9-Jan. 31	
Mine Rica M. Co., Cal., Nov. 15, 20c.....Dec. 18-Jan. 8*	
Nevada Cons. Borax Co., Nov. 29, 5 cts. Jan. 10-Jan. 29*	
Ophir, Hid. Treasure, W. P., Nov. 24, \$1.50 Jan. 3-Jan. 25	
Overman, Nev., Nov. 25, 25c.....Dec. 23-Jan. 16	
Overman, Nev., Nov. 20, \$4.....Dec. 25-Jan. 23	
Peter Walter, Placer Co., Cal., Nov. 14, 75c.....Dec. 20-Jan. 9	
Phoenix Lander Co., Nev., Nov. 21, 50c.....Dec. 27-Jan. 16	
Piedmont, W. Ex. Co., Ely Dist., Nov. 27, \$1.50.....Jan. 9-Jan. 27	
Pocahontas G. M. Co., Cal., Nov. 29, \$5 Jan. 6-Jan. 30*	
Seaton M. Co., Cal., Oct. 27, \$20.....Dec. 2-Dec. 30*	
South Eureka Co., Nev., Oct. 24, 25c.....Nov. 30-Dec. 23	
Spring Mount Co., Ely Dist., Nov. 27, 50c Jan. 7-Jan. 29	
Starlight G. and S. M. Co., Nov. 1, 25c.....Dec. 11-Jan. 2*	
South Chariot M. Co. Owyhee Co., Id., Nov. 7, \$1 Dec. 15, Jan. 8	
Tecumseh G. S. & C. Co., Dec. 5, \$3.....Jan. 9-Jan. 30	
Tallulah M. Co., Humboldt Co., Nev., Nov. 29-Jan. 15, 30	
Washington & Creole, Nev., Nov. 27, 50c.....Jan. 5-Feb. 1	

#### MEETINGS TO BE HELD.

Daney.....Special Meeting, Dec. 28  
Empire Mill and Mining Co.....Annual Meeting, Dec. 20  
Gould & Curry.....Annual Meeting, December 25  
Northern Hydraulic M. Co.....Annual Meeting, Nov. 29  
Ophir S. M. Co.....Annual Meeting, Dec. 20

#### LATEST DIVIDENDS—(Within Three Months).

Black Diamond Coal M. Co.....	Payable Sept. 15
Chollar Potosi, \$1.....	Payable Sept. 9
Chollar Potosi, \$1.....	Payable Oct. 10
Chollar Potosi, \$1.....	Payable Nov. 10
Chollar Potosi, \$1.....	Payable Dec. 11
Eureka Cons., \$1.....	Payable Sept. 20
Eureka Cons., \$1.....	Payable Oct. 20
Keystone M. Co., \$2.....	Payable Sept. 16
Meadow Valley, \$1.....	Payable Sept. 15
Meadow Valley, \$1.50.....	Payable Nov. 8
Meadow Valley, \$1.50.....	Payable Dec. 15
Natoma.....	Payable Oct. 5
Raymond & Ely, \$1.50.....	Payable Sept. 15
Raymond & Ely, \$5.....	Payable Nov. 17
Succor Mill and M. Co., 50c.....	Payable Sept. 15
Succor Mill and M. Co., 50c.....	Payable Oct. 14
Yule Gravel M. Co., 50c.....	Payable Oct. 6
Yule Gravel M. Co., 50c.....	Payable Oct. 14
Yule Gravel M. Co., 50c.....	Payable Nov. 4
Yule Gravel M. Co., 50c.....	Payable Dec. 5

—\*Advertised in this journal.



## OUR HOME INDUSTRIES.

## The California Paving Company.

The works of this Company, which are located on Berry street, between Fourth and Fifth, were destroyed by fire some five weeks since, but are being rapidly rebuilt, and business has already been resumed. Their process of wood preserving is again in full operation, and a large amount of work is being done at present in preparing piles for the Central Pacific Railroad. The piles come from Puget Sound, and by this process are first subjected to a steaming in an immense boiler, under a pressure of several hundred pounds of steam; after which a preparation of hot pitch and other ingredients is let in, and forced into the pores of the wood. Twelve or thirteen hundred piles are now on hand, and are being subjected to the process. These are for the Central Pacific.

The company do also a large amount of work for the Government, and have an order on hand to preserve 2,000,000 feet of timber for the Wilmington breakwater, near San Pedro. They prepared the timber for the first section of the work, which is nearly completed. They prepare the wood for all the pine pavements laid down in the city, and do a large amount of work upon ship timbers, bridge timbers, etc.

The process used is Robins' process, sometimes styled the creosoting process, and consists in treating the timber with hydro-carbon oils. Wood, when properly treated by it, lasts for years without being subject to decay, and in fact it is almost universally used in preparing timber for the construction of works upon the Pacific Coast.

## Brush Manufacturing

is one of the constantly increasing local industries of San Francisco. One firm alone—Fieldman, Simpson & Co.—manufacture 15,000 brushes a month, of various kinds. They export largely to adjacent States, and to Japan, China, Australia and Salt Lake. This firm are sole proprietors of the rattan street and stable brooms, one of the most useful articles in the trade; this broom has a ready and constant sale, and the firm say that the demand is continually increasing. Of finer work, they manufacture some very handsome brushes, competing with the brush makers East, in quality and price of goods.

## Scientific Chicken Fountain.

The accompanying cut represents Orndoff's drinking fountain for fowls, which is intended principally for young chicks. With troughs as usually constructed, they get wet, which has the effect of injuring them more or less, retarding their growth, cramping their legs in cold weather and in some cases actually killing them. For young turkeys in particular this is a great convenience, since a bad wetting is almost certain death to them. In drinking from a trough the little things are frequently crowded into the water, but by the use of this contrivance the danger would seem to be obviated, for the holes are only large enough for one or two to drink at a time, and too small for them to tumble into. Two sizes are made, in case they should be required for large fowls, to keep them from fouling the water which is constantly at the top of the drinking holes without running over. The water is thus kept from running over and wasting by the application of a well-known principle of atmospheric pressure.

**FEARS UNFOUNDED.**—Recent advices from England express grave apprehensions on the part of capitalists who have invested in the Utah mines, that possession of their property will be jeopardized by the Mormon troubles. Such fears appear ridiculous in this country, and have no foundation except in an ignorance of facts and sensational reports.

## Sowing the Vine on the Vine.

Father Accolti of the Santa Clara College has transplanted from the *Unita Catholica* the following article: Mr. Dominic Perone was very anxious to reduce his own extensive vineyard to one single and particular kind of grape. To destroy all the old vines and plant them with new ones, he thought was a plan which, besides requiring an extraordinary outlay, would be against the tender feelings of an agriculturist, who naturally cannot but with great repugnance hear the idea of destroying those plants which for many years have proved beneficial. To engraft all these vines anew would be a matter of doubtful success, and besides would deprive the proprietor of an almost certain income for many years to come. In the midst of such perplexities an idea occurred to Mr. Perone, and this was sowing the vine on the vine. Such an expression on account of novelty, is at first sight almost incomprehensible, but it becomes intelligible as soon as the reader gets acquainted with the method adopted by Mr. Perone which is as follows: He at first picks up with great care and discrimination some grapes perfectly ripe, of that very kind which he wishes to introduce into his vineyard, and keeps them in a dry place. When in spring, by making a small cut in the vine, it bleeds and the sap oozes out, he makes a small hole in the lower part of the mainstock with a gimlet, and introduces into it a seed of the grapes preserved. This is what he calls "sowing." This seed—which has been kept alive for months by the moisture contained in the berry—being immersed in a liquid homogeneous and connatural, now germinates, and the sap, hardened by the contact of the air, envelops the small root of the new little plant, which identifies itself with the main stock and grows up with the other branches. Meanwhile the mother vine continues to bear fruit. After two years the new offshoot is pruned. The third year it bears grapes. Then the old vine is cut above the newly-sown plant, and thus the change or renovation is perfectly operated.

## Rail Road Mines Near Elko.

These mines are situated about 25 miles south of Elko, and mostly upon the southeast slope of Bunker Hill Peak, one of the highest points upon Railroad mountain, reaching the altitude of 9,050 feet.

This rich district was discovered and organized near two years ago by men possessing little or no means for the development and opening of the mines they had found. Hence there has been no work done developing the district except such as was absolutely necessary to give title to the locators of the claims in pursuance to the laws of the district, and the mines were not brought into notice until the latter part of last spring, when C. E. Gillette and Hogle of Carlin, Alexander Kinkead, E. V. Robbins and others of Elko, in connection with some New York capitalists, took hold in good earnest and have met with success beyond the most sanguine anticipations.

The formation of this district is somewhat peculiar and different from all others that I have seen. The bed-rock lies in alternate sections or fields of granite, porphyry, quartzite with crystallized feldspar intermixed; also, slate and limestone, the latter predominating. The general appearance and surroundings of the district are not unlike some portion of the foothills of the Sierras in California. The presence of timber with little or no sage brush in the vicinity of the mines, with plenty of pure cold water, and an abundance of grass and flowers in and around Bullion City, gives the place an air of homelike appearance and permanency.

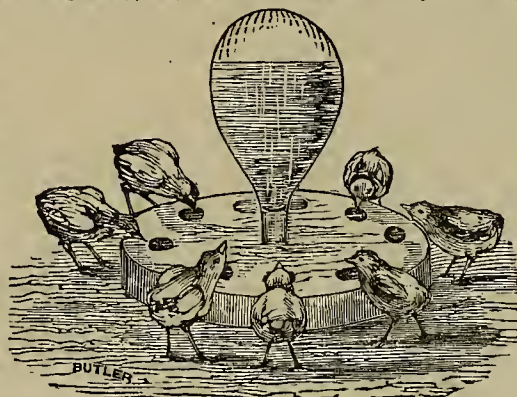
After a careful inspection of the many ledges and the several grades of ore peculiar to this district, I am led to the belief that here will be opened some of the most extensive and valuable lodes in Eastern Nevada—equal, if not more extensive, than Eureka, as a district with the same combinations of carbonates, oxides, etc., of lead, and in some instances carrying gold with the higher grade galenas; also magnetic iron. Assays show ores yielding as high

as \$1,500 in silver, with a fair percentage of other metals.

The success which has heretofore attended the reduction of ores at Eureka by smelting process, is due to the splendid fluxing material found in the same vein matter with galena, or in distinct ledges in the same vicinity.

To notice the peculiar local appearances and combinations of each ledge, with its favorable or unfavorable surroundings, would occupy too large a space and at the same time perhaps be too dry and uninteresting to the reader. In view of this fact, I shall only call attention by name to a few of the richest and most important lodes now being worked, and from which ore is being extracted, namely: Shoo Fly and Last Chance, both fine ledges and owned by E. V. Robbins of Elko. Bullion and Bullion Extension, also Bullion Tunnel, intended to explore and prospect the above named lodes, are being worked and owned by C. E. Gillette of Carlin. Red Jacket, Lone and True are rich lodes of smelting ore owned by Dr. Alexander Kinkead of Elko. The Hussey tunnel, penetrating Bunker Hill, about eight hundred feet below the summit, is intended to prospect and develop the above mentioned property of Dr. Kinkead's; tunnel owned by Hussey & Co. of New York.

"Tripolia" and "Wehfoot," both splendid lodes, worked and owned by A. J. Ralston & Co. of San Francisco. "Black Warrior," a rich lode of milling ore, the only one in the district, owned by Franks, Cary & Co. of Carlin. "Lyon Lode,"



SCIENTIFIC CHICKEN FOUNTAIN.

another excellent deposit of smelting ore, owned by Morgan, Peyton & Co. of Bullion City. The "Ella Lode" is a large deposit of copper, heavily charged with silver, owned by Cary & Co. The "Mayflower" is also another fine deposit of smelting ore, owned by Tansy & Co. of Elko.

I have given your readers the facts in relation to the district from a personal inspection of the various lodes and their surroundings, and do not desire to see any undue excitement or wild speculation, which has come near destroying the reputation of several districts in this State. Let the truth be told and facts correctly reported, and we then need have no fears of the result. Mining is the chief occupation of our citizens, and upon it depends to a more or less degree the success of individuals in every other calling; therefore carefully foster this great interest, and should the aid of capital be required (as it is necessarily) for the development of our resources, let us secure it not by misrepresentation, which never avails anything except for injury to the parties using it, but by disseminating truth, which is amply sufficient at all times to secure the desired result for a community or an individual.—*Sac. Union.*

**BRANDY FROM MANZANITA BERRIES.**—The Nevada Transcript has the following: I. J. Rolfe and Josiah Rogers have started the manufacture of brandy from manzanita berries. We visited Mr. Rogers' wine house yesterday and witnessed the process of manufacture. The berries are first fermented in a vat with water and then the liquor is distilled. It has more body than grape brandy, and is much smoother to the taste than grape brandy of the same strength. Messrs. Rolfe and Rogers are highly pleased with their experiments, and they propose to make, this year, about 200 gallons of manzanita brandy. The berries are very abundant and can be gathered at one cent per pound. Another advantage is that they can be kept in sacks like grain until required for use, while grapes must be pressed when taken from the vine. The entire cost of cultivation is also saved, as manzanita grows in such quantities that

a hundred distilleries could be supplied without making much of a drain upon the crop. If the liquor improves with age, as does grape brandy, it will be a great favorite, as in its new state it is much more agreeable to the taste.

The parties mentioned above have recently secured through the agency connected with this office, a patent for the manufacture of brandy from manzanita berries. It is said that from 100 pounds of manzanita berries three gallons of brandy can be manufactured, while it takes from 75 to 80 pounds of grapes to make one gallon. Furthermore, the former makes the best article.

## The First California Vineyard.

About the year 1771, the vine was first planted in our State, and Mission San Gabriel claims the honor of having the first vineyard. The early history of this vineyard, as well as the origin of its vines, is lost in the past, but has given rise to many speculations. It is believed by some that the vines were brought, by roots or cuttings, from Spain, either directly or by way of Mexico; others hold that these vines were taken from some one of the many wild varieties that are scattered over the whole State; and there is still another theory, which is upheld by General M. J. Vallejo, than whom there is no better authority on the subject in the State.

According to his statement, the Fathers first tried to make wine from the wild grapes, but, being unsuccessful, planted the seeds from raisins that came from Spain. The result of these experiments gave them several varieties, among which are our present blue Mission and a white grape of a musky flavor. These two, after due trial, they retained and propagated, rejecting all the others.

The first two theories are certainly very defective; for, even with the quick and certain journey that can be made in our days of steam locomotion, an enormous percentage of roots and cuttings die on the trip—in fact, but a very small percentage reach us in a living condition, and it requires all the advanced horticultural skill of our age to revive and sustain them. As for once being of the wild species, they do not bear the faintest resemblance, either in fruit, leaf, or wood, to any wild variety. The bunches and grapes are large, the leaf full and decidedly marked, and the joints comparatively close, while their branches are sturdy—characteristics that are seldom found singly, and never collectively, in any one wild species of grapevine.

More probable than either of these theories, is that the seeds were purposely sent out from Spain, through Government authority, as certainly where the orange, the lime, the olive, the fig, etc., and this is the only rational manner of explaining the presence of the same two varieties—blue and white so called Mission grape—in New Mexico, where they are universally cultivated. The missions in both provinces, being under the direction of the same power in Spain, would naturally receive the same selections of seeds.

It is claimed by experts that the blue Mission grape is the same as the Beni-Carlo, but that does not alter the strength of the argument, for it may be its seedling, just as the Pineau of Burgundy has some eighty different seedlings, each and every one closely resembling the parent grape and vine.

It matters little, however, practically, where the first vines came from. They were known to grow at the Mission San Gabriel, and from there the planting of the blue Mission was extended from mission to mission, until not a single one was without it. The blue grape seems to have been the favorite with the Fathers, and undoubtedly because its wine resembled the red wines of Old Castile.—*Overland Monthly.*

THE OVERLAND MONTHLY completes three and a half years of its publication with the December number. Its management, by John H. Carmany & Co., for the last two and a half years, has been a success, financially, as well as in literary reputation. It was fortunate for the magazine that it fell into the hands of those who were able and discriminate enough to command the best talent on this coast to fill its pages ably and acceptably. It continues to improve from volume to volume. Its varied literature is greatly prized at home, and it is highly credited abroad, for the vigor of its originality. We could mention several valuable articles in the December number, but all we have read are creditable. A new volume commences in January. Subscription, \$4 per year.



## POPULAR LECTURES.

## THE ATMOSPHERE.

[Prof. Ez. S. Carr before the Mechanic Arts College, Mechanics' Institute Hall, S. F. Reported expressly for the Press.]

LECTURE I. Dec. 9.—The Hall of the Mechanics' Institute was well filled last Saturday evening, by those who had enrolled themselves as students at large, of the Mechanic Arts College.

At 7½ o'clock President Hallidie stated that the course would consist of twenty lectures, governed by the same general rules that were in force during the last course. The hall would be opened at 7 o'clock, and the lectures commence promptly at half-past seven, at which time it was necessary that all students should be in their places. Absence from two consecutive lectures, or three in all, would work a forfeiture of the seat for the season, and that a limited number of visitors' tickets were in the hands of the Regents and the Secretary of the Institute. He said also that the regular seats of the class would be assigned at the next lecture. He then introduced Professor Carr of the University, who proceeded to deliver

## The Introductory Lecture.

He began by saying that knowledge was a true acquaintance with things. Science was organized knowledge, and education organized common sense; and these facts would be the key-notes of his lectures. He alluded to the fact that a great many people suffered from mental dyspepsia, because they stuffed themselves with other people's ideas. It was a prevalent error to look too far off for our knowledge—to investigate the geography of the moon while neglecting that of our country. And the Professor stated in his lectures he would confine his class to things at home, and would begin with the most common and familiar of all things, the Atmosphere. He then, by the aid of large charts, explained the component parts of the air we breathe, and proceeded to speak more especially in the lecture of the evening of the qualities of the two principal ingredients, oxygen and nitrogen.

He said that it had been announced that the lectures would be illustrated with the University apparatus; that announcement he said was true. Placing his hands on an ordinary wash tub, he remarked, "this is one of the most useful articles in the collection," and stated that the experiment he intended to present that evening he would show, could be performed with the simplest materials. The table of component parts of the atmosphere was first referred to set out on a printed chart.

Oxygen.....	20.61.....	1,233,010,000,000,000 tons.
Nitrogen.....	77.35.....	3,994,593,000,000,000 tons.
Carbonic Acid.....	.04.....	5,287,000,000,000 tons.
Aqueous Vapor.....	1.40.....	54,400,000,000,000 tons.
100.00.....	5,287,350,000,000,000 tons.	

He then proceeded to the first experiment which consisted in obtaining oxygen gas. In performing the same he made use of the following language.

## Oxygen

may be obtained in a number of ways. The simplest manner of obtaining this gas is to separate it from solid bodies. I have here common chlorate of potash which contains over one-third oxygen. By mixing this with black oxide of manganese in this small tube, and gradually heating the mixture, oxygen is set free as a gas. In order to ascertain if oxygen has been produced, I take a common piece of splintered wood, set it on fire, then extinguish the flame, and insert the glowing end in the tube. If oxygen exists the spark will immediately brighten.

He here performed the experiment for the benefit of those present, and satisfactorily. In order to give you a better idea of how oxygen may be obtained in larger quantities, I would direct your attention to the retort before me in which is pre-

pared the mixture of chlorate of potash and black oxide of manganese. Beneath the retort I have adjusted a small lamp to be used in heating the mixture. A tube is attached to the retort which connects it with the water contained in the tub. Within the tub, about three inches from the top of it, I have adjusted shelving, on which to place these jars which are for the purpose of containing the oxygen gas as it is evolved from the mixture in the retort. The shelving is immersed in water about one inch. I place the mouth of the jar over the tubing connected with the retort, the water surrounding the outlet of the jar prevents the escape of the oxygen when it comes off from the mixture. In a short time the jar is filled and more may be obtained if desired. I now use the same means of ascertaining the presence of oxygen that I did before.

By introducing this steel watch spring, one end of which I previously heat by igniting some sulphur placed there in the form of a match. Combustion takes place and the steel wire is seen to burn with even greater brilliancy than more combustible matter, throwing off sparks in every direction.

All the Professor's remarks were illustrated with satisfactory experiments. He then proceeded to say: No element in nature has so strong an affinity for other bodies as oxygen. Oxygen is thus a great source of power both in heat and light; the decay of animal and vegetable substances is caused by it, for if we would stop decay, we must exclude atmospheric air. Breathing, as is known to all, is the essence of vitality. Our lungs operate as the bellows; when oxygen traverses every part of our bodies which is affected by the circulation of the blood, the temperature of the body necessary to existence is kept up by oxygen meeting and uniting with certain bodies and burning them. The motion of the muscles, activity of the brain, each vital movement, is directed by the union of oxygen with other elements.

Direct observation has proven that oxygen makes up more than one-half of the entire globe, eight-ninths of the ocean, and one-fifth of the atmosphere; of all animals, three-fourths; all mineral matter, one half; and all vegetable matter, four-fifths. It has a powerful effect in destroying organic bodies. Were oxygen alone in the air, it would act much more energetically than under the present combination. The process of combustion and decay would be very rapid, and that of life would go on with greater energy.

## Consumption of Oxygen.

An adult consumes daily between one and two pounds of oxygen. Say that the population of the world be rated at 1,000,000,000. To each person allow one pound per day. Calculate the amount consumed in other ways in an approximate manner. Upon this basis we will find that the daily consumption will amount to the following proportions: man, 1,000,000,000; animals, 2,000,000,000; decay, 4,000,000,000 pounds, making in all about 8,000,000,000 pounds, or 3,571,428 tons of oxygen consumed daily. Suppose that the amount of oxygen at present in the atmosphere should remain without increase upon the hypothesis of calculation just stated by me, it would take 945,098 years for all the oxygen of the atmosphere to be consumed.

## Supply of Oxygen.

The prime source of disease is bad ventilation. When sickness is at our doors, Providence is blamed as the cause. When a mother sees her child laid low in illness she finds fault with Providence for her affliction. This is all a mistake. Providence has nothing to do with sickness, it is the neglect of Nature's laws that entails disease and consequent death. Ventilate your rooms. Ventilate your public halls, your places of amusement. Eat proper food; take judicious exercise. All these are among the first rules of the laws of Nature. If these rules are adopted disease will not be so frequently complained of. If a man would understand how long he could exist in his room with safety, being ill ventilated he may take the dimensions of his room, calculate the amount of air it would contain and what length of time it would take to consume the oxygen in it.

We cannot reduce the amount of oxygen to more than 4 or 5 per cent. without endangering the life of the higher order of animals. If there were no means to provide for the restoration of oxygen to the air the existence of man on the earth would

be rendered impossible in a short time. Another common element of the atmosphere is

## Nitrogen.

This is a colorless, tasteless, and odorless gaseous body, the same as was said of oxygen. In order to obtain nitrogen for experimental purposes, we take a piece of phosphorus, burn it under an inverted jar placed over a water bath, in order to prevent fresh air from entering. The phosphorus in being so consumed, will take up nearly all the oxygen present and we shall have remaining principally nitrogen. You notice a white vapor is apparent after the phosphorus is burnt. This is phosphorus acid gas, the combination of oxygen and phosphorus. By shaking the water here present in the jar, it will be absorbed, leaving nitrogen alone.

Its effect is the opposite of that of oxygen. It is a non-supporter of combustion as will be made evident by taking a lighted taper and inserting the same into the nitrogen jar. We find that the flame is immediately extinguished. Nitrogen presents none of the activity of oxygen, on the contrary it is an indifferent and inert body. It acts as the balancing power to oxygen. It is a wise provision of the Almighty that a happy medium exists in the combination of the gases as presented to you by me in the beginning of my lecture.

## USEFUL INFORMATION.

## The Insect Nebula.

One has no idea, says Mr. Beecher, of the populeousness of spaces that seem empty to ordinary inspection. But at certain hours of the day, when the sun lies in the right direction, if one can get the range and angle of a section of air against a good background, so that whatever flies in it will reflect the light to his eye, he will see such swarms of things, large and small, as will enlarge his ideas of the sum of being. And what wind and bottom! A swarm of midges will play the game of insect nebula to perfection, whirling around some imaginary sun, as if swept by some force external to themselves, and not by their own tiny wings. There will be anywhere from a thousand to ten thousand in a group. They evidently have a common sympathy in motion. Although the finest ear cannot detect the sound, yet they either see, or hear, and whirl to some recognized signal—rising, falling, whirling to the right, opening out into line as if sent to skirmish; and whirling back again in an instant, and, rallying round and round their centre, they keep up this intense motion for hours together. The expenditure of vital force in these active little atoms must be enormous. But these are single tribes. The air is full of others of different nature and habits, whose varieties seem to increase as you look. All love heat. August is their crown month. Even the early days of September make a difference. The thermometer is up in the eighties, but the flies have grown soher. Only at midday are they themselves again. At night and in the morning they are stiff, and no doubt, if we understood their language, we should hear them complaining of the infirmities of old age, and lamenting the shortness of life.

## A Word About the Moon.

Every one is familiar with the singular phenomenon known as the "new moon carrying the old moon in her arms," when, in addition to the slender crescent, the whole disc is more or less distinctly visible a few days after the new moon; the same appearance, or "the old moon nursing the new," presents itself in like manner in the waning moon, when she rises a few hours before the sun; but we fear there are few who shake off dull sleep to see it. This is what is called the *lunæ cendrée*, or ashlight of the moon. Its appearance used to be taken as an indication that the moon was phosphorescent, or possessed some light of her own, independent of that she receives from the sun. Now, however, it is satisfactorily proved to arise from the sunlight reflected from the earth upon the dark moon; for it must be remembered that the earth is to the moon what the moon is to the earth, a reflector of the sun's light; and when it is new moon to the earth it is full earth to the moon, and *vice versa*, and thus the opaque moon becomes illuminated by earthlight—to use a term analogous to moonlight; but on account of the great size of the earth compared to the moon, this light is 14 times as bright as our moonlight, and thus occasional brilliancy of this "reflection of a reflection" is accounted for.

## GOOD HEALTH.

## Heart Sounds.

The action of the heart is remarkable for its rhythmical character, each of its four cavities exhibiting a succession of contractions and dilatations in the most perfect rhythm. It will be remembered that the heart contains two auricles and ventricles, each side having no communication with the other; both ventricles contract together while both auricles are dilating; the contraction of the ventricles corresponds with the projection of the blood into the arteries causing the pulse; the dilatation of the ventricles corresponds with the collapse of the arteries. The contraction of the ventricles takes place during the dilatation of the auricles, with a brief interval of repose; the duration of the contraction is twice that of the dilatation of the cavities.

These contractions and dilatations are accompanied by sounds, caused, principally, by the flapping of the valves at the openings of the ventricles, the aorta, and pulmonary artery. The blood, in passing from the auricles to ventricles, produces no sound; when the ventricles simultaneously contract, the valves between them and the auricles flap back to prevent a backward flow; this flapping, with the muscular contraction of the fibres, and the rush of the blood along the irregular surface of the cavities and through the orifices of the great vessels, causes the first sound; the second is produced by the shutting of the valves at the entrance of the aorta and pulmonary artery, during the dilatation of the ventricles. The capacity of each of the cavities is about two ounces.

There is a noteworthy difference between the perfection of the closure of the valves between the auricles and ventricles on the two sides of the heart; on the left side they close perfectly; on the right they do not, when the ventricle is distended. Many causes tend to produce an accumulation of the blood in the venous system, and consequently in the right side of the heart (as any obstruction to the circulation in the lung—cold, compression of the veins, etc.) which is a dangerous condition, from the liability to sudden death; in case of such distention, the blood is permitted to flow back through these valves, not only into the right auricle, but into the large veins; this condition is one of the few in which venesection will relieve impending death from suffocation and pulmonary congestion.—*Good Health.*

SINGULAR CASE OF SUNSTROKE.—The *Holly (N. Y.) Standard*, some time since related a singular case of sun-stroke which had then occurred in that town. While Daniel S. Waite was riding his moving machine on his place between that village and the Ridge, a load of furniture passed along the road, on which was a man holding a large mirror. The sun's rays glancing on the mirror were reflected so that they struck Mr. Waite, who fell senseless from his machine on the outside. He afterwards compared the effect to that of a blow powerful enough to knock him from his seat. The lines were passed around his neck, and the team stopped when he fell. After a time he came to himself and climbed partially upon the machine, and the team started and carried him to the road, where he again fell off and relapsed into a state of insensibility. He was discovered in that condition shortly afterwards and conveyed to his home. His life was for some time despaired of, but he has since recovered.

CURE OF STAMMERING.—The effectual cure mainly depends upon the determination of the sufferer to carry out the following rule: Keep the teeth close together, and before attempting to speak, inspire deeply; then give time for quiet utterance, and after a very slight practice the hesitation will be relieved. No spasmodic action of the lower jaw must be permitted to separate the teeth when speaking. This plan regularly carried out for six months, cured me when twenty years old. I was painfully had, both to myself and others. Without a determination to follow out the plan, it is of no use attempting it.—*Etc.*

SORE MOUTH AND TONGUE.—Three drachms of borax, two of sugar of lead, half an ounce of alum, and one pint of strong sage tea. Use as a wash.

WHEN AFFECTED BY FOUL AIR IN DESCENDING WELLS.—Throw down unsalted lime, then several pails of water before venturing to go down.



# Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. W. STRONG,  
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## San Francisco:

Saturday Morning, Dec. 16, 1871.

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Dec. 14, 1871.—Legal Tenders buying 91; selling, 91½. Gold in New York to-day, 109½.

## Table of Contents.

Improved Universal Wood-Working Machine;—Ill.....	369
MECHANICAL PROGRESS.—The Varying Evaporative Power of Boilers; Relative Value of Brick Vaults and Iron Safes.....	370
SCIENTIFIC PROGRESS.—Surface Movements of the Earth; An interesting experiment; Interesting Astronomical Discovery.....	370
CORRESPONDENCE.—Mines at Radensburg, M. T.: The Resources of Montana.....	371
MINING SUMMARY.—Stock & Exchange Board: Market Report.....	372-3
Our Home Industries; Scientific Chicken Fountain; Sowing the Vine on the Vine; Railroad Mines Near Elko; The First California Vineyard.....	374
POPULAR LECTURES.—The Atmosphere.....	375
USEFUL INFORMATION.—The Insect Nebula; A Word About the Moon.....	375
GOOD HEALTH.—Heart Sound; Singular Case of Sunstroke.....	375
State Geological Survey; Science vs. Ghosts; Hint to Miners.....	376
Railroad Items; Best's Separator—Ill.; Watson's School Desks and Seats—Ill.....	377
DOMESTIC ECONOMY.—House Cleaning; Beds; Mechanical Hints; Thinking Promotive of Health.....	378

## Mining Accidents.

O. B. Clark, a miner near Diamond City, Montana, was caught by a caving mass of earth a few days ago and killed.

William Hart was seriously injured in the Oneida mine, Amador county, last week.

A Chinaman was caved on in a mining claim on Gold Hill, Idaho, a few days ago, and killed. He was a member of the See Yup company.

Patrick Quinn had his right hip broken in the Crown Point mine, at Virginia, recently, by coming in contact with the timbers while riding on a car.

A miner named Cox, had the little finger torn from his right hand in the same mine, by getting it caught between the car and the timbers.

## Recent Mining Discoveries.

Two silver bearing ledges have recently been discovered near San Bernardino.

A whole hill of a substance, resembling magnesia, has been found on Battle Creek, Oregon.

ASSAYERS' AND PROSPECTORS' OUTFITS.—The house of John Taylor & Co., in this city, has been established since 1852, and has been furnishing assayers' and prospectors' outfits since the first discovery of the mines on this coast. They have now the most complete stock of assayers' materials on the Pacific slope. The goods are all imported direct from England, France, and Germany, and are of the finest quality. Their advertisement will be found in another column.

ON FILE.—Communications from Dun Glen; San Diego mines; Smelting and Milling in Utah.

## The State Geological Survey.

At the last meeting of the Academy of Sciences, Prof. Whitney made a semi-official statement of the progress of the State Geological Survey. He stated that after providing for the continuance of the survey, a party was fitted out to explore and map the region south of Mono Lake and the Inyo and White Mountain ranges. After completing this difficult and expensive undertaking they went to Aurora, and with Prof. Whitney surveyed the country west of that place and about the head of the East and West Walker, including a portion of the Sierras embraced between the branches of the Walker, Stanislaus and the Tuolumne. The completion of these surveys gave them the necessary data for finishing the southeast quarter of the central map.

Of the Central California map which embraces about one-third of the area of the State, the southwest quarter is done, the southeast quarter will be finished in February and the northeast quarter is ready for the engraver as soon as the southeast quarter is done. The northwest quarter is two-thirds drawn. If the requisite funds are forthcoming to continue the survey the whole map can be finished so as to be laid before the Legislature of 1873-4. This will be the completion of the most extensive piece of topographical work yet undertaken in the United States, the Coast Survey and U. S. 40th Parallel Survey excepted.

A general map of reference, both geological and topographical, of the State of California, has been completed, on the scale of 18 miles to an inch and in which is embraced all the information possible to be shown on that scale.

A Map of the Mining Region is partly completed, extending from near Knights Ferry to Quincy in Plumas Co., occupying an area of nearly 10,000 square miles. Its principal object is to show the detailed geology of the mining region and especially the position and situation of the great deposits where hydraulic operations are going on.

## Placer Mines.

A detailed survey of the gravel districts has been made for the purpose of throwing light on the relation, position and origin of these remarkable and highly important deposits. Messrs. Bowman, Potter, and Goodyear have been engaged in this work. The latter gentleman has also been mapping and exploring the detailed geology of the eastern slope of the Sierra Nevada, during the whole season of 1871, and is still employed in his researches, the result of a portion of which as far as they concerned the mines in the vicinity of Placerville, we published a short time since. His field has been to the south of the North Fork of the American River, and that of Messrs. Bowman and Potter to the north.

In the prosecution of this work a large amount of valuable information, both of a geological and geographical character has been collected. It is confidently expected that the condensing of all the material collected, with the accompanying maps and sections, will exhibit the phenomena of gravel deposits, in regard to which there has been so much discussion, and such a number of opinions, in a new light, and that many difficulties which have hitherto perplexed the miners will be solved. Professor Whitney desired the work to be continuously prosecuted until a full and detailed map of, and report on, the whole region has been prepared, which he thought could be accomplished during the next session, if the pecuniary means are forthcoming. The size of the map and the amount of detail to be placed upon it will depend chiefly upon the liberality of the present Legislature.

## Barometrical Observations.

During the explorations in the gravel re-

gions, a great many barometrical observations have been taken for the purpose of determining the grade of ancient river channels. Barometrical stations have been established at several points on the Central Pacific Railroad, and one at the office of the Survey in San Francisco, where observations have been taken for over a year at the Smithsonian hours, 7 A. M. and 9 P. M., and great pains have been taken to have the observations well and punctually made. Already ten months observations have been completed, and valuable and interesting results obtained. It would be desirable to have a station established at a point higher than Summit, but this at present seems impossible. Summit Station is the highest permanently inhabited point in California, and probably the only station raised as much as 7,000 feet above the sea-level, of which we shall have a spirit level determination for some time to come.

The question as to how and where the geological portion of the Survey shall be published is one that it is impossible to answer, until some definite steps as to appropriation, are taken by the Legislature.

Prof. Whitney alluded to the publication of the Yosemite Guide Book, and the first volume of the Birds of California. Work had also been begun on the volume on Conchology.

The intention is to issue from 11 to 16 works according to the liberality of the Legislature. If eleven, the division would be as follows: General Geology, 2; Economic Geology, 2; Paleontology, 2; Botany, 1; Zoology, 4; Maps, etc., 1. If sixteen, in addition to the foregoing, there will be Physical Geology, 1; Economic Geology, 1; Paleontology, 1; Botany, 1; Zoology, 1; of these the following have already been issued, Geology (Report of Progress), 1; Paleontology (Invertebrata), 2; Zoology, 1.

## Science vs. Ghosts.

The public of this city has been very much exercised during the past week with regard to certain somewhat remarkable appearances which have been noticed upon several panes of window glass, first in the residence of the widow Jorgensen on Mason street, and afterwards in that of Mr. Hucks, "just round the corner." All sorts of theories have been suggested to account for the phenomena, and the "spiritualists" and "ghost sharps" have made the most of the opportunity to create capital for their favorite theories.

The appearance of "images" upon glass, such as have so astonished the wonder seekers of this city during the past week, is no new thing under the sun. On applying to Mr. C. Newmann, of the San Francisco Glass Works, for information upon this matter, he has placed in our hands two somewhat rare volumes, treating upon the philosophy and curiosities of glass making, in which, such appearances as those noted above, and many other singular changes in the character and appearance of glass, are noticed, as the result of well-known natural causes. Some writers having attributed such changes to the action of fire, one of the authors above referred to, says:

The presence of garments and jewelry [found in ancient tombs] which bear no signs of any alteration forbids all idea of fire; we must therefore endeavor to find elsewhere the cause of this iridescence. Here again M. Peligot comes to our aid. "The majority of glass objects," says he, "whose manufacture dates back to a remote period, have undergone, by the influence of time and damp, a very marked alteration. All the old glass which is found in the tombs of the ancient Romans and Gauls presents an iridescent and black aspect, giving sometimes very brilliant reflections, like those of the wings of certain species of butterflies. It is to be found even on panes of glass of more modern manufacture placed in the windows of stables, etc., viz., places often exposed both to constant damp and high temperature. The iridescent scales, which can be easily removed by gentle rubbing, are a mixture of silica and earthy silicates, the alkaline silicates having disappeared."

## HINTS TO MINERS—NO. 3.

### Placer Deposits.—(Concluded.)

To some such process of solution and deposition, as was spoken of in our last issue, we may ascribe the presence of gold in rocks and veins; its alteration and reduction to metallic form ("free gold") in the upper or exposed parts of such rocks or veins; and, finally, the still greater purity and size of its particles, so frequently noticed in placers. As Lieber very forcibly remarked, if we are forced to believe in the reduction and molecular aggregation of gold above the water-line in veins, we must expect the same process to be still more likely in placers, which are more exposed to atmospheric agencies and percolating waters. It is not necessary to assume, however, that this process takes place in all cases. On the contrary, certain chemical reactions being involved, there must be certain coincident conditions. This theory affords the only rational explanation of the influence of eruptive rocks upon auriferous deposits.

It must be confessed that the mechanical processes of deposition of alluvial deposits are by far the most influential and universal in such formations. As already remarked, superficial deposits sometimes occupy the precise locality of the rocks from which they are produced; as, for instance, numerous gold diggings in the Southern and Pacific States on the very outcrops of auriferous veins. These not having undergone to any extent the processes of mechanical concentration and accumulation, are not so rich as placers of accumulations. Cotta lays down the following rules, deduced, *a priori*, from the method of formation, and confirmed in practice:

1. Placers *in loco* will be likely to carry metals in quantity and distribution like the original deposits on which they lie.
2. Alluvial placers of accumulation will be richest in those places where the current of the stream was interrupted by a diminution in its fall, by a sudden change of direction, or by the entrance of a tributary. (I would add, also, by reefs, bars and eddies.) The absolute richness, however, depends upon local circumstances, and the size and weight of the floated masses must be taken into consideration.
3. Especially rich are frequently, of course, the small depressions, holes, creases and fissures of the bed-rock over which the current passed.
4. The lowest layers of each period of deposition are usually the richest.
5. Sometimes, however, several periods of deposition have succeeded each other; and thus several rich strata may appear in the same ground.

Not only the courses of present streams, but also, and especially the ancient channels now forsaken, are the localities of placers.

Of these rules, the fourth and fifth, especially, deserve attention. A period of depression may be understood as the time during which all the mass of alluvial material is sensitive to the action of water. By the gradual cementing process already alluded to, or by an interruption of the aqueous action, the alluvial layers may become so hardened as to form a new bed-rock; or, simply, by great accumulated depth, they may seem to be affected to the bottom by the action of the stream. The result would be, if the deposition of material continued, a second series overlying the first. The miners of the Pacific Coast have learned by experience that there are frequently two or three bed-rocks, and corresponding strata of maximum richness, alternating with others more or less barren. Many old diggings, supposed to have been exhausted, will undoubtedly be worked again, with deeper bed-rock tunnels, and will yield more gold than ever.

Gold placers from the nature of their formation, are generally in their richest parts, much richer, by virtue of the concentration which they have undergone, than the strata or vein from which they are formed. The possible aggregation of particles, to nuggets larger than the



masses formed *in situ* has already been noticed.

But, under some circumstances the veins may be richer than the resulting placers, as for instance, when the original rock is so hard as to resist in a higher degree than the country rock, the disintegrating influences, so that for every small portion of auriferous material detached an immense quantity of the harder debris is carried away in the same streams; or where the peculiar arrangement of water courses is such as to scatter instead of concentrating the auriferous material. But these instances are rare. On the other hand the amount of material to be extracted and treated for obtaining a given quantity of gold is generally much greater in placer than in vein mining.

The removal of poor or barren strata, in the search after the richer accumulations, etc., are heavy items and it should be remembered that the capital thus invested must pay for itself in a short time or become a total loss.

#### Railroad Items.

CALIFORNIA has, at this time, 902½ miles of railroad in active operation, as follows: Main Central Pacific Road (to State line), 293; California and Oregon branch of same (Roseville Junction to Red Bluff), 115 miles; San Joaquin Valley branch of same (Lathrop to Bear Creek), 58 miles; Southern Pacific (to Hollister) 100 miles; Watsonville branch of same, 20 miles; California Pacific (Vallsjo to Marysville), 95; Napa Valley, branch of same, to Calistoga, 33; North Pacific (Donahue to Healdsburg), 42; Sacramento Valley road, 48; California Northern (Marysville to Oroville), 26; San Pedro and Los Angeles, 21; Stockton and Copperopolis Road to Milton, 48; San Rafael and San Quentin, 3½.

It is believed that the new Central railroad route from Denver to Salt Lake, along the South Platte to Middle Park, and thence westward, will be shorter than the present route, by 200 miles.

It is announced that the San Joaquin Valley railroad will be completed to a point 20 miles south of Visalia, by next July.

RAILROAD matters are lively in Sonoma county. The lengths of the different lines projected are as follows: From Donahue to Russian River, 35½ miles; from there to Cloverdale, 17½ miles; from the Junction to Bloomfield, 13 miles.

The branch line of the Southern Pacific railroad, extending into the Pajaro Valley, has been opened for passengers and freight.

The grading on the railroad between Banta's and Oakland is progressing rapidly. It is expected that the work upon the portion of the line from Banta's to Martinez will be completed by the first of February.

A narrow-gauge railroad, from San Francisco to the Colorado River, via Santa Cruz and Watsonville, is talked of.

The surveys on the San Diego and San Bernardino railroad have been commenced, and active operations will begin in immediately.

Work upon the western end of the Northern Pacific railroad is progressing rapidly in Washington Territory. The first 20 miles from Kalama is about completed, and contracts are advertised for the next 30 miles.

The Walla Walla and Columbia River railroad company have gone to work in good earnest, to complete the project of a railroad from Walla Walla to Wallula. A new route is being surveyed by which many bridges and difficult places are avoided.

The proposed railroad from Portland, via Boise City, Idaho, to a point on the Union Pacific, near Salt Lake, is engaging considerable attention in Oregon, and an effort will be made to carry out the enterprise immediately.

The Northern Pacific have found a fine route for their road through the Yellowstone country.

The surveying party running a line to connect the Colorado Central with the Union Pacific, have reached Greeley, locating the line a little north of that town.

Work on the three-foot extension of the Colorado Central, up the Clear Creek Cañon is progressing. A considerable section is graded 12 miles up the cañon.

ARRANGEMENTS have been completed for the extension of the Denver and Rio Grande railroad to the Arkansas river.

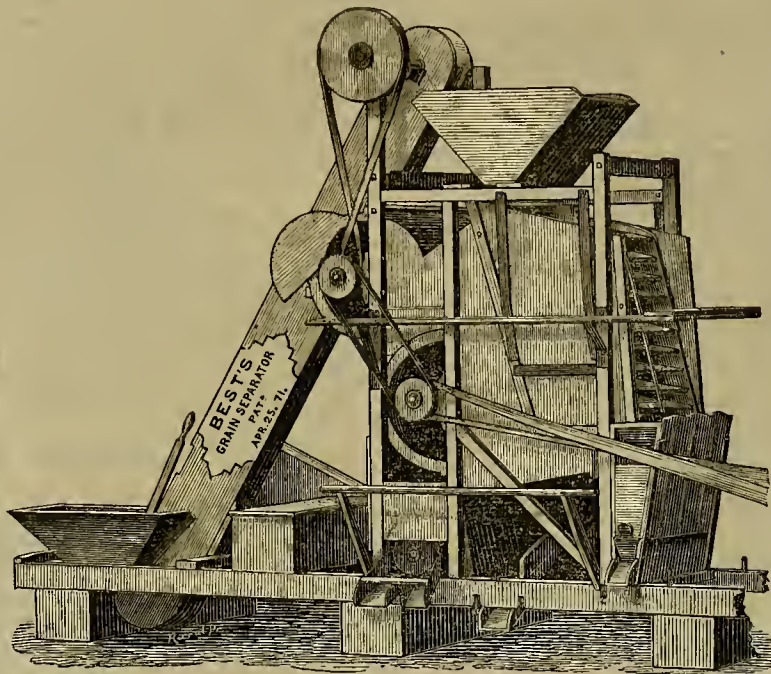
At the latest dates, the Texas Pacific Company was applying to the Texas Legislature for permission to use the narrow-gauge.

The Missouri, Kansas and Texas railroad is contracted to be built through the Indian Territory to Red River.

#### Best's Grain Separator.

Our illustration represents an improved grain separator, the peculiarities of which principally consist in the employment of a series of peculiarly-shaped screens, for the purpose of separating and cleaning the different qualities of grain; and also the use of feeding and returning elevators, by which the grain can be fed to the hopper with very little labor, and by which it can be returned to the hopper for a second cleaning, if desired.

The discharge spout for the second quality of grain is so arranged that it will either discharge the grain immediately, or allow it to pass to the returning elevator, if it is not sufficiently cleaned. The first quality of grain is allowed to fall upon a



BEST'S IMPROVED GRAIN SEPARATOR.

screen, which has a peculiar tossing motion, and which throws it into the discharge spout, or, by reversing the movement, the grain can be kept in the screen as long as desired.

A set of angular plates are introduced between the screens, and by their action, and the shape of the screens, the blast is directed forward instead of backward. The discharge spouts are constructed so as to operate separately or together. The machine can either be used as a stationary one, or can be moved about at will by being placed on wheels.

At one end of the frame is placed a hopper, which is low, so that the grain can easily be discharged into it. An elevator takes the grain from the hopper and carries it to the upper one. From the latter the grain passes to the cleaning apparatus, its discharge being regulated by an adjustable gate. The cleaning screens are all secured in one frame, in two sets, which are separated by a riddle consisting of a series of vanes placed at an angle, so that by their action they direct the wind from the fans forward and upward to the upper series of screens.

The frame which contains the screens and the riddles, has a side-shaking motion given to it by means of the bell crank connected with the crank or eccentric wheel, so that all the screens have the same motion. The screens are given a peculiar downward curve near their rear end so as to facilitate the discharge of grain after it has passed beyond the reach of the blast.

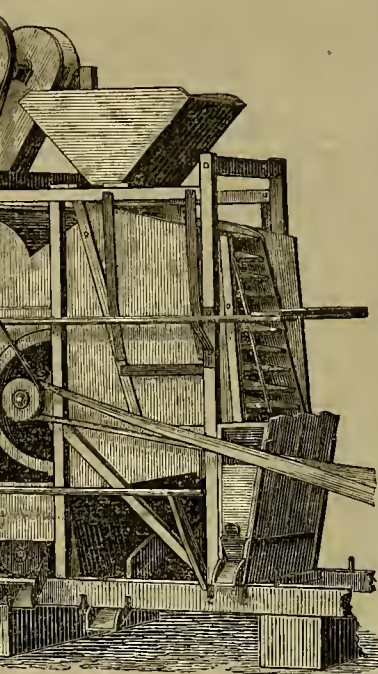
The lowermost screen, which finally receives and retains the good wheat, is separated from the upper set, and has a peculiar tossing motion given it, so as to thoroughly separate the small grains and chaff. From this screen the wheat is finally delivered into the discharge spout. The second

quality of grain will be carried over the rear edge of the screens and will fall into a spout from which it can be discharged at one side; or if it be desired to give it a further cleaning, a gate near the center of the spout is closed and the grain can be directed into an elevator, which discharges it into the first hopper, so that it will again pass through the screens.

This improved machine is the invention of a thoroughly practical man and deserves general attention. The patent was taken out through the SCIENTIFIC PRESS Agency, by Daniel Best, of Yuba City, Yuba county, Cal., who may be addressed for further information at that place.

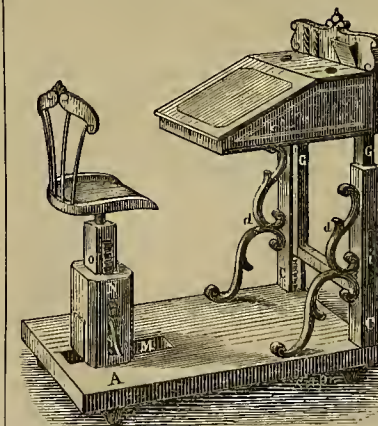
#### Watson's School Desks and Seats.

We call the attention of school directors and business men generally to an improvement in school desks and seats which possesses the advantage of being simple



and convenient, and that of giving more comfort to those who are compelled to be in a sedentary position for any length of time.

Persons who went to school thirty or forty years ago, no doubt recollect distinctly the uncomfortable forms or benches



WATSON'S SCHOOL DESKS AND SEATS.

on which they were compelled to sit for hours, and which seemed to have been made more as a means of punishment than of comfort and ease. Now-a-days, students are treated in quite a different manner, and all the school furniture is manufactured with a view of being as convenient as possible. Our illustration represents a new improvement in this line, which is a desk and seat combined in a simple, portable article of furniture, in which both the seat and desk are adjustable, with relation to each other, so as to accommodate scholars of different sizes.

By referring to the cut, it will be seen that A represents a board about 2½ feet long, upon which is secured both the desk and seat, so that they can be moved as one article of furniture. This board is placed on castors, for conveniences in changing its position. At one end of the board, A, the posts, C, are secured by the braces, d. On the outside of these posts is a channel and a rack. The desk is constructed as usual, but is provided with two legs, G, G, only, which extend downward from the back of the desk. The legs are placed at the proper distance apart to slide down the posts, C, being provided with a tongue that bites in the groove, and are supported by a cross brace at the lower end. A spring pawl, i, is arranged to work through a mortise in the legs and engage with the rack on the standards, while the opposite end is made to be depressed by the thumb, and disengage the pawl when desired. By this arrangement, the desk may be raised or lowered to any desired height, and kept in its position in a firm manner by the pawl. The desk is provided with stationary inkstand and pen-rack, as shown.

A slot, M, is made through the platform, A, in front of the desk where it is desired that the chair is to be placed. This slot is made at right angles to the seat, so that the seat, which is secured in the slot, can be moved to or from the desk as desired. A square block, O, through which is a round hole, fits loosely in the hole through the block, N, having a rack on two of its sides. The sides of the block, N, next to these racks, are slotted, and pawls, g, are arranged to operate in the slots, so that it can be raised or lowered and kept in any desired position. The chair has a single leg or standard, extending down through the block, O, and is confined by a pin beneath, so that it will revolve. The chair may be fixed to the platform through the slot by any suitable contrivance.

The entire arrangement forms a neat and convenient article of furniture, that can be moved about at will, and making a complete desk and seat, suitable not only for schools but for general business purposes. Our engraver has taken some liberties with the model which was placed before him, making the cut a little more ornamental; but it can be made in any style desired, either plain or ornamental. This improvement was patented through the SCIENTIFIC PRESS Agency, by Wiley Watson, of Visalia, Tulare county, Cal., from whom further information concerning it may be had.

#### PATENTS & INVENTIONS.

##### Full List of U. S. Patents Issued to Pacific Coast Inventors.

(FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.)

- FOR THE WEEK ENDING NOVEMBER 28.  
 ATTACHMENT FOR PLANERS.—Alonzo S. Hewlett, Sebastopol, Cal.  
 CAR-COUPLING.—Henry H. Morgan and Albert Gerry, San Francisco, Cal.  
 NOZZLE.—Thomas Watson, Nevada, Cal.  
 APPARATUS FOR AMALGAMATING GOLD IN TAILINGS.—Thomas A. Pratt, Marysville, Cal.  
 TRAMWAY SADDLE.—Joshua Clayton Robinson, Hamilton, Nev.  
 MOTIVE POWER AND BALANCE CAR.—Joseph Bayman, San Francisco, Cal.  
 FOR THE WEEK ENDING DECEMBER 5.  
 CHILDS' CARRIAGE.—Edwin Falkingham, San Francisco, Cal.  
 WASHING MACHINE.—Charles Larrabee, Haywood, Cal., assignor of three-fourths of his right to John Yule, same place.  
 ANIMAL TRAP.—Henry Polley, San Francisco, Cal., assignor to himself and Isaac Jessup, same place.  
 BUTTER-MOLD.—Anthony J. Derrick, Sheridan, Nevada.  
 MORTISING MACHINE.—Enoch J. Rowe, Eureka, Cal.  
 LAMP-BRACKET OR SUPPORT.—Henry Campbell, San Francisco, Cal.  
 LUBRICATOR.—William T. Garratt, San Francisco, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible by telegraph or otherwise at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.



# DOMESTIC ECONOMY.

## House Cleaning.

"Oh, dear, here comes again the dreaded time for a general overhauling. I wonder what for things get dirty."

Poor Biddy, she has a little too much of the work that is made for man, instead of the man being made for the work.

I wonder if I were to systematize what little I know of the subject, would it lighten the load for weary backs? By way of preface I would remark that there is too much slopping on house cleaning occasions; a lady should be able to white-wash a room or wash its wood-work without spilling a drop of lime or water. Then the carpets could be taken up, returned and order restored in short metre.

"What, and let the dust settle on the clean wood and windows?"

Of two evils choose the least. Better a little extra dusting than live under the long reign of confusion that accompanies the usual method.

Then I would recommend cleaning one room at a time; those furthest removed from general usage first. Sweep carpets before taking up; send carpets and litter to the lower regions through the windows, by means of basket and rope. There again care must be taken, else the yard will look worse than the house; for this reason let carpets be shaken at a distance. Be careful and extract every tack before shaking. I have heard of three different cases of loss of sight from tacks having entered the eyes while carpets were being shaken.

### To Whitewash Ceilings

of rooms, unslacked lime is good enough; but if for the sides a mixture of whiting and glue is preferable—it does not rub off; to put it on without dropping, have a two-quart basin with only a little wash in. This you can hold in one hand without fatigue, while with the other you ply the brush. A painful becomes dirty; also you are apt to get too much lime on the brush. You will choose a square as large as the arm can ewing the brush over, dip only one side of the tip in the wash, carry this to the center of the square and paint each way. The reason is obvious; if you commence where you left off, the lappings will be whiter than the rest. Let the first coat be thick, the last thinner. Cross and recross each time on each square. Commence in a different corner the second time.

If my directions have been plain enough and you follow them, you will not drop a particle of whitewash, and there will be no droppings or brush-marks on your room ceiling. A paint brush does finer work, and is easier to learn with.

### To Clean Paint

use little water at a time; keep warm and clean by changing often; a flannel cloth is better than cotton. Be careful of soap. Put but a little soap or skim milk in the water, add soap to the cloth when needed. A sharp piece of soft wood is indispensable for the corners; the point will become like a paint brush. A saucer of sifted ashes used where paint is badly smoked or fly specks are thick, is better than soap; wipe last with clean wet towel and don't spill a drop of water. Never put soap on glass unless it can be well rinsed, which I think can never be the case with windows; wash off dirt in clean warm water and dry; then with a paste of whiting and water, and with a little cloth, place a little in the center of each pane. With another cloth rinse over the glass; next rub off with dry cloth till the window shines like crystal.

### Papering.

Don't try to paper with a carpet down. Make paste, cut bordering, and the paper, the day before. If the wall has been white-washed it must be washed in vinegar to neutralize the alkali in the lime. If papered before and you wish the paper removed, soap with water and it will peel off.

If convenient provide a long board wide as the paper, though a table or two will do. The paper must be measured, placed right side down on the board, then with a brush proceed to lay on the paste, not too thickly, but over every part, and be careful that the edges receive their share. When completed, double within three inches of the top, the paste sides being together, carry to the wall, mount your chair, and stick your three inches pasted paper on the wall at top. That holds it; now strip down the other, and see that it fits just right; if not, peel down, make right, then press to the wall from the center right and left. Leave no air under, or when warm it will expand, bursting the paper.

Of course the paper must be matched; it

will not do to measure by line unless the walls are perfectly plumb. Small figures make less waste and a small room looks the largest. Stripes make a low room higher and if there are no figures between, or in the stripe to match, there is no waste, and no trouble in putting on. If a narrow border is the style, let it be bright if the paper be neutral, but if that be bright, the border had better be dark and neutral.

If the paste be made too thick the paper will be apt to crack and peel off, if too thin, it will saturate the paper too quickly and make it tender in putting on. A counter-duster (Brussels brush), is nice to brush the paper to the wall. White clean cloths will do, but it will not do to rub the paper with this; being damp the paint or color rubs off the paper. The tables must be dried each time after pasting, for the same reason. Paste under paper must not freeze, neither dry too quickly. If whitewashing is done after papering, place a shingle next to the border, or better, tack double strips of newspaper wider than the border all around the room.—*Ex.*

**BEDS.**—These are very necessary, as well as convenient and comfortable; but like all other things in this world, there are good and bad beds. Feather beds are injurious in every way to health, and should, therefore, be dispensed with. The way in which many manage them is also very absurd; they rise from them in the morning, make them up steaming hot, close the doors and windows, all till bed-time. Then the scene is acted over again. All beds should be most thoroughly aired after being used, that the gases and odor imparted to them from the human body may be removed. The room, also, should be well ventilated. There are many materials that make more healthful beds than feathers, among which may be enumerated hair, husks, straw, springs, etc. Cotton will answer for some constitutions; but for most it is too heating. Many patients tell their physicians they cannot sleep on a bed made of cotton. It produces a restless, itching sensation, like that of insects crawling over the body. Hard beds are much to be preferred to soft ones, and that for more reasons than can here be stated.

**APPLE CAKES.**—Mix unbolted wheat or rye meal with cold water, making a dough or batter soft enough to yearly level itself. If shortening is desired, use sweet cream or butter. Fill a rather deep pie plate about a third full of the batter, and sprinkle over a little sugar. Wash, quarter and core tart apples, and place as many of them in the batter (skin side up), as it will hold. They may be pressed down and leveled with a stiff spoon. Over the top sprinkle some sugar, and bake till nicely brown.

This cake is both wholesome, nutritious and delicious. Children and grown folks can eat of it without danger of injury.

**TRICHINÆ IN THE DOMESTIC FOWL.**—Dr. G. S. Bryant reports having found imbedded in the stomach and intestines of the hen large numbers of entozoa, coiled in cysts in every possible attitude, and not unlike the trichinæ found in the human muscle. He suggests that the disease known as "chicken cholera" is dependent on the presence of these entozoa, and promises to continue and report investigations on this subject.—*Richmond and Louisville Medical Journal.*

**WILLOW LEAF TEA.**—It is announced, on excellent authority, that more than half a million pounds of willow leaf were made up at Shanghai, last season, and palmed off as green tea. The willow leaf, as prepared, cannot be distinguished from green tea by the eye; but to cover the difference in taste, it has to be mixed with tea before being sold. It can be produced at a cost of about four cents a pound, and can be used in the proportion of twenty to forty per cent. of the whole mixture.

**BAKED apples** are a very healthy food for children and grown people, and should be placed upon the table every day. Many persons are very fond of sweet apples and milk, and we must say we reckon ourselves among the number. Give us good, plain, well cooked food, in preference to fixed up dishes of conglomerated pastry.

**REFUSE lemon halves**, left after lemonade and cake-making, should never be thrown away. They will be found to have very useful properties. The cook can cleanse her hands with them, or she will find them useful for taking stains from her platters and sauce-pans.

CLEANLINESS is next to godliness.

## Mechanical Hints.

**UTILIZING WASTE OF GUTTA-PERCHA AND RUBBER.**—The waste is cut into small pieces, and 100 pounds of the same are placed in a well-closed boiler, with 10 pounds bisulphide of carbon and 4 ounces absolute alcohol, well stirred; then the boiler is closed, and left a few hours to soak. After this time it is found to be changed into a soft, dough-like mass, which, after being ground or kneaded, is fit to be formed into any shape, when the solvent will evaporate. If too much of the latter has been used, a thick, unmanageable liquid is obtained. This process was patented in England some sixteen years ago.

**CHEAP PAINT.**—A cheap paint may be made for outbuildings that will last for years, by taking milk and cement—or "water lime" as some call it; mix and apply three or four coats; any dry color may be added. This will last for years and by renewing once in two or three years, a building will look as well as if painted with oil paint. To put this on, the paint should be stirred constantly or the finer parts will all soon be used out and at last you will have nothing but sand. Have a boy to stir it all the time; mix often.

A VERY cheap varnish must, of necessity, be dear at any price, for it is certainly more profitable to use a varnish that will wear well, and save the expense of repainting; thus doing two jobs at the price of one.

**TO IMPROVE GILDING.**—Mix a gill of water with two ounces of purified nitre, one ounce of alum, one ounce of common salt; lay this over gilt articles with a brush, and the color will be much improved.

**KEROSENE** applied with a cloth to stoves will keep them from rusting during the summer. It is also an excellent material to apply to all iron utensils used about a farm.

## Thinking Promotive of Health.

It is reasonable to expect that with the improvements in mechanical appliances and the proportionate reduction of manual labor, to say nothing of the superior results secured by machinery, there would be less mental friction or excitement, and a consequent tendency to that nervous harmony which is essential to successful thought. A man being able, by the assistance of the unerring and tireless fingers of steel, to accomplish in one quarter of the time that which his unsteady hand was capable of doing before the friendly automaton lent its help, should find that cerebral calm which is not generally incident to fatiguing toil and opportunity for prosecuting studies which give breadth to the mind and perspicuity to the judgment. Thus should those who enjoy the best physical health and the happiest moral condition.—*Drayton.*

We must never fall into the delusion that the purposes of God set aside the use of means. I have heard thoughtless or captious talkers say, "If God works out his purposes, then there is no need for preaching, or any other means." Ah, simpleton that thou art, if we teach you that God works out his purposes by means, how mad must you be to charge us with thinking lightly of the means!—*Spurgeon.*

Lost wealth may be restored by industry; the wreck of health regained by temperance; forgotten knowledge restored by study; alienated friendship smoothed into forgetfulness; even forfeited reputation recovered by penitence; but who ever again looked upon his vanished hours—re-called his slighted years, stamped them with wisdom, or effaced from heaven's record the fearful blot of wasted time.

**ENJOYMENT.**—Those who are not easy at home will not find enjoyment anywhere else. The man who yawns at his own fire-side will only lacerate his jugular if he goes to a crowded city. Happiness is an internal arrangement, and if it don't bloom at home, it won't flower anywhere.

It unfortunately happens that no man believes he is likely to die soon, so every one is much disposed to defer the consideration of what ought to be done, on the supposition of such an emergency; and while nothing is so uncertain as human life, so nothing is so certain as our assurance that we shall survive most of our neighbors.

MINDS of moderate caliber are too apt to ignore everything that does not come within their own range,

## AUCTION SALE.

We will sell at public Auction, to the highest bidder for U. S. gold coin, on THURSDAY, December 28th, 1871 at W. A. Holcombe & Co.'s warehouse, the following described goods, to pay storage and advances, unless the charges are previously paid. Sale to commence at 12 m.:

Description.	Name.	Charges.
1 case.....	R. Carpenter.....	\$13 50
1 case.....	W. N. O.....	25 00
5 cases wine.....	W. N. O.....	20 00
1 bd. sack.....	Jacoby Roberts.....	22 00
1 pkgs furniture.....	Smith & Smith.....	45 45
1 bundle, 1 bedstead.....	Sancho Garcia.....	24 50
1 case.....	A. Mow.....	18 25
1 pkgs frames, 1ssah.....	Martinetto.....	25 00
1 barrel.....	A. H. Field.....	25 00
2 pkgs ore.....	H. Winfield.....	25 50
1 case.....	Geo. Landage.....	27 00
1 case acid, 1 case.....	Goodwin & Co.....	27 25
1 marble slab.....	C. Boman.....	31 85
4 sbs quartz, 1 case.....	Martinetto.....	30 50
1 velocipede.....	R. Waldman.....	27 18
1 sign, 2 cot beds.....	Mrs. They.....	27 50
1 trunk.....	R. G. G.....	27 75
2 cases.....	Miss Simpson.....	32 00
1 case.....	C. G. Halsey.....	33 50
1 sign.....	Geo. W. Wells.....	41 25
1 bulky.....	Sam Lee.....	23 75
1 case.....	Douglas.....	30 35
1 sign, 2 cot beds.....	W. M. Sealy.....	30 00
1 case.....	F. S.....	40 35
1 case.....	C. G. Halsey.....	30 50
6 pumps, 1 pk handles, 4 pk iron, G. M. Ganch.....	C. Hanson.....	52 50
1 case.....	B. McCoee.....	31 00
1 case.....	R. G. Weddell.....	37 50
1 case.....	Geo. Speck.....	34 25
1 box.....	Douglas & Co.....	34 00
1 case.....	S. Goldman.....	35 25
1 box.....	J. Hanna.....	36 00
1 case.....	R. W.....	36 50
1 case.....	J. Moody.....	35 50
1 coil chain.....	A. M.....	57 00
10 1/2 barrels.....	J. Austin.....	65 00
1 case.....	A. Wall.....	36 00
1 stove, 1 boiler, 1 bd. pots, 1st pan, David Ruggles.....	.....	36 00
1 case.....	C. W.....	27 00
5 cases, 1 trunk, 1 chest.....	C. Hensley.....	27 00
1 case.....	F. C. Warren.....	35 00
1 case.....	W. Terry.....	22 00
1 case.....	No Mark.....	12 00
1 chest.....	C. W. Worden.....	16 00
1 trunk, 1 case.....	E. R. Campbell.....	68 10
1 trunk, 1 bd Bedding.....	Mrs. Lesley.....	18 00
1 case.....	C. W.....	12 00
2 pkgs bedstead, 1 bundle.....	Mrs. Bowers.....	15 00
1 show case.....	J. A. Mahew.....	33 00
1 barrel.....	F. Glass.....	30 10
1 case.....	No Mark.....	65 00

San Francisco, Nov. 25th, 1871. COBB, JONES & CO., Auctioneers.

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In the sparkling goblet, giving assurance to the invalid that his thirst will be deliciously assuaged; that his stomach will be refreshed and purified; that if he is feverish, his body will be cooled by healthful evaporation; that if he is constipated, the difficulty will pass away without a pang; and that if the condition of his general health is impaired, it will be speedily restored. Of course, he will take care to procure none but the genuine.

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22v2-3msa U. S. Deputy Surveyor, Reno, Nev.

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Dated San Francisco, Nov. 24, 1871.  
Office, 315 California street. A. J. SEVERANCE,  
CHAS. W. RANDALL,  
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22-v23-tt



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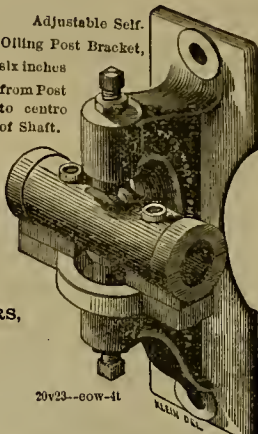
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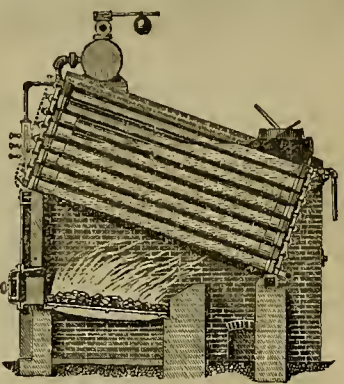
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and can be used conveniently by women or children.

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OVERLAND TRAINS.

Express	Express	Dec. 6,	Express	Express
Daily, via	Daily, via	1871.	Daily, via	Daily, via
Oakland.	Vallejo.		Vallejo.	Oakland.
LEAVE	LEAVE		ARRIVE	ARRIVE
7.00 A.M.	8.30 A.M.	San Francisco	7.30 P.M.	8.30 P.M.
7.35 A.M.	8.35 A.M.	Oakland	8.00 P.M.	8.30 P.M.
7.50 A.M.	8.35 A.M.	San Jose	8.30 P.M.	8.30 P.M.
8.35 A.M.	8.35 A.M.	Niles	7.05 P.M.	7.05 P.M.
11.27 A.M.	8.35 A.M.	Stockton	4.22 P.M.	4.22 P.M.
	10.30 A.M.	Vallejo		
	12.50 P.M.	Davis	3.10 P.M.	3.10 P.M.
1.15 P.M.	2.00 P.M.	Sacramento	2.30 P.M.	2.35 P.M.
ARRIVE	5.15 P.M.	Colfax	10.20 P.M.	10.20 P.M.
	11.45 A.M.	Renno	2.10 A.M.	2.10 A.M.
	9.10 A.M.	Winemuccia	4.15 P.M.	4.15 P.M.
	12.00 M.	Battle Mountain	1.25 P.M.	1.25 P.M.
	4.40 P.M.	Elko	8.45 A.M.	8.45 A.M.
	6.30 A.M.	Ogdon	5.20 P.M.	5.20 P.M.
	ARRIVE		LEAVE	LEAVE

San Francisco and San Jose.

LEAVE	LEAVE	ARRIVE	ARRIVE
7.00 A.M.	10.40 A.M.	San Francisco	8.30 P.M.
7.10 P.M.	4.40 P.M.	Niles	8.35 A.M.
8.30 P.M.	5.30 P.M.	San Jose	7.0 A.M.
ARRIVE	ARRIVE	LEAVE	LEAVE

San Francisco, Stockton and Modesto.

LEAVE	LEAVE	ARRIVE	ARRIVE
4.00 P.M.	1.00 A.M.	San Francisco	8.30 P.M.
8.10 P.M.	11.05 A.M.	Stockton	4.45 P.M.
9.20 P.M.	5.30 P.M.	Modesto	1.00 A.M.
8.30 P.M.	11.27 A.M.	Stockton	4.22 P.M.
ARRIVE	ARRIVE	LEAVE	LEAVE

Sacramento, Marysville and Tehama.

LEAVE	LEAVE	ARRIVE	ARRIVE
4.45 A.M.	2.35 P.M.	Sacramento	8.45 P.M.
10.25 A.M.	3.25 P.M.	Junction	12.15 P.M.
1.50 P.M.	5.15 P.M.	Marysville	10.20 A.M.
9.00 P.M.	8.35 P.M.	Tehama	6.50 A.M.
	9.30 P.M.	Red Bluff	5.30 A.M.
ARRIVE	ARRIVE	LEAVE	LEAVE

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Leave	Leave	Arrive	Arrive	Arrive
S. Fran.	Vallejo.	Calistoga.	Marysville.	Sacra'to.
8.30 A.M.	10.30 A.M.	1.30 P.M.	4.00 P.M.	1.30 P.M.
9.10 P.M.	5.45 P.M.	8.15 P.M.	10.25 P.M.	8.40 P.M.
9.30 A.M.	10.35 A.M.	1.00 P.M.	5.15 P.M.	5.15 P.M.
Leave	Leave	Leave	Arrive	Arrive
Sacra'to.	Marysville.	Calistoga.	Vallejo.	S. Fran.
7.30 A.M.	6.00 A.M.	7.50 A.M.	10.15 A.M.	12.15 P.M.
2.30 P.M.	11.30 A.M.	9.15 A.M.	5.30 P.M.	7.30 P.M.
	10.45 A.M.	3.00 P.M.	5.20 P.M.	7.30 P.M.

Sacramento, Davis and Marysville.

Leave	Leave	Leave	Arrive	Arrive
S. Fran.	Sacra'to.	Davis.	Wood'd.	Maryville
8.30 A.M.	11.45 A.M.	12.50 P.M.	1.25 P.M.	4.00 P.M.
9.40 P.M.	7.15 P.M.	8.05 P.M.	8.35 P.M.	10.35 P.M.
8.30 A.M.	2.30 P.M.	13.10 P.M.	3.35 P.M.	5.15 P.M.
Leave	Leave	Leave	Arrive	Arrive
Maryville	Wood'd.	Davis.	Sacra'to.	S. Fran.
6.00 A.M.	7.35 A.M.	8.15 A.M.	9.00 A.M.	12.15 P.M.
11.30 A.M.	2.30 P.M.	3.10 P.M.	4.00 A.M.	7.30 P.M.
10.45 A.M.	12.30 P.M.	3.10 P.M.	1.30 P.M.	7.30 P.M.

SAN FRANCISCO & N. PACIFIC R. R.

Leave	Leave	Leave	Arrive	Arrive
San Fran.	San Fran.	San Fran.	San Fran.	San Fran.
4.35 P.M.	4.35 P.M.	4.35 P.M.	8.45 A.M.	8.45 A.M.
5.00 P.M.	5.00 P.M.	5.00 P.M.	8.20 A.M.	8.20 A.M.
6.00 P.M.	6.00 P.M.	6.00 P.M.	7.30 A.M.	7.30 A.M.
Arrive	Arrive	Arrive	Arrive	Arrive
6.45 P.M.	6.45 P.M.	6.45 P.M.	6.45 A.M.	6.45 A.M.

CAL. P. R. R. CO.'S STEAMERS.

Leave	Leave	Leave	Arrive	Arrive
San Fran.	San Fran.	San Fran.	San Fran.	San Fran.
4.00 P.M.	4.00 P.M.	4.00 P.M.	10.00 P.M.	10.00 P.M.
6.00 P.M.	6.00 P.M.	6.00 P.M.	8.00 P.M.	8.00 P.M.
2.00 A.M.	2.00 A.M.	2.00 A.M.	2.00 P.M.	2.00 P.M.
Arrive	Arrive	Arrive	Arrive	Arrive
2.00 A.M.	2.00 A.M.	2.00 A.M.	12.00 M.	12.00 M.

\*Sundays excepted. \*Sundays only.

T. H. GOODMAN, A. N. TOWNE,

Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

STOUT, MILLS & TEMPLE,

PROPRIETORS OF THE

GLOBE IRON WORKS,

DAYTON, OHIO.

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Manufacturers

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Per cent. of Power guaranteed

equal to any Overshot Wheel.

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MILL GEARING AND SHAFTING

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Water Powers Estimated and Plans Furnished.

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WATERS' SELF-OILERS.

PATENTED October 21, 1862;

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22, 1868, and June 20, 1869.

Glass reservoir, with white

metal coupling cast on;

Substantial brass stem, with

graduating plug—V slot on

one side, as shown in mag-

nified cut—in the top.

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OILER in the market; perfect

lubrication on loose pulleys and all kinds of bearings.

Any kind of Oil in any kind of weather. Price, \$4.50

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H. M. BALCH,

432 Kearny St., S. E. corner of California st. (up stairs,

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ALL KINDS OF

MUSICAL INSTRUMENTS,

Either Brass, Reed or String.

Special attention given to PIANOS,

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but experienced workmen.

ORDERS from the country attended promptly.

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LEVI STEVENS.....President.

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Patent Agraffe Pianos,

GRAND, SQUARE AND UPRIGHT.

Pianos to Let.

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Opposite old Capitol, SACRAMENTO.

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streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS

AND KNIVES COMPLETE,

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promptly attended to.

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This Favorite House is located on Jackson street, a

few doors west from Montgomery; offers the greatest in

ducements for Families. The International Coach will

be at each Car Depot and Steamboat, plainly marked In-

ternational Hotel, to convey passengers to the Hotel

free, and to any part of the city at reasonable rates.

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24v22-3m

Proprietors.

Running from Ogden, Utah, to Omaha, Nebraska—over

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MAKING DIRECT CONNECTIONS

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Francisco); also with the Utah Central R. R. to Salt Lake

City.

AT CHEYENNE with the DENVER PACIFIC R. R. for

Denver City and the Mining Districts of Colorado.

AT OMAHA, for Chicago, Eastern and other cities, with

the Chicago and Northwestern; Chicago, Rock Island and

Pacific; Burlington and Missouri River; St. Joseph and

Council Bluffs Railroads; also, for St. Louis and all South-

ern cities.

EXPRESS TRAINS RUN DAILY.—The U. P. R. R. use

the vestibule patent air brake; Miller's patent truss-

platform and elastic car-coupler; and the most approved

construction of care for the comfort and safety of passen-

gers.

PULLMAN'S MOST MAGNIFICENT PALACE SLEEP-

ING CARS attached to express trains.

T. L. KIMBALL,

General Passenger Agent, Omaha.

PENNSYLVANIA CENTRAL R. R.

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Pittsburgh, Fort Wayne and Chicago R. R.

—IS—

61 Miles the shortest line

From Chicago to New York. Three daily lines of

Pullman's Palace day and Sleeping Cars

from Chicago

to Pittsburgh,

Harrisburg,

Philadelphia

and New York

WITHOUT CHANGE!

With but one change to Baltimore, Hartford, Pro-

vidence, Springfield, New Haven, Worcester, Boston. And

is the most direct route to Washington city.

Express trains on this line are equipped with WEST-

INGHOUSE PATENT AIR BRAKES.

Boston and New England Passengers

will find this route especially desirable, as it gives them

an opportunity of seeing the finest views among the

Alleghany Mountains, besides visiting Pittsburgh, Phila-

delphia, and New York without extra cost.

All New England Passengers holding through

tickets will be transferred, with their baggage, to Rail

and Boat connections in New York WITHOUT CHARGE.

Through Tickets via this great short route for sale in

San Francisco, at 422 California street, 208 Montgomery

st., 306 Montgomery st., and at Ticket office of Central

Pacific R. R. in Sacramento, and at Salt Lake, Cheyenne

Denver and Omaha. Be sure your tickets read via

Pennsylvania, Central & Pittsburgh, Ft. Wayne and Chicago

route.

J. R. ENRINGER, JR., Gen'l Agent,

4v22-ly

San Francisco, Cal.

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SEAL ENGRAVER,

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The first and only Manufactory on the Pacific Coast.

MEERSCHAUM MOUNTED WITH SILVER. Meerscham

Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.



## Notes on Contributions to Our Cabinet.\*

No. 549—Sample of Mountain cedar from Geo. Hermann, Helena, M. T. It is of fine grain, suitable for making furniture, desks, etc., and is susceptible of a fine polish.

No. 550—Specimen of crystallized sulphur, from a mine in the vicinity of Humboldt Station, Nev.; kindness of G. W. Meacham.

\*Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

## New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

OUR SAVIOR'S SCANDINAVIAN EVANGELICAL LUTHERAN CHURCH.—Trustees: G. O'Hara, Taffie, C. Nelson, C. Kruger, O. W. Kling, C. Mattson, C. Thorsgrust, J. G. Nelson, T. Thomsen and J. Nelson.

SOCIETA ITALIANA MUTUAL BENEFICENZA also filed certificate of incorporation.

FRANCIS MINING CO.—Capital stock, \$1,600,000 in 16,000 shares. Trustees: A. C. Peachy, T. Bell, G. D. Roberts, J. W. Gashwiler and S. Hydenfeldt.

CENTRAL POLYNESIA LAND AND COMMERCIAL CO.—Capital stock, \$100,000 in 100 shares. Trustees: J. W. Stow, J. B. M. Stewart and J. Makee.

AMERICAN FLAG MILL AND MINING CO.—Capital stock, \$3,000,000 in 30,000 shares. Trustees: H. Raymond, A. J. Moulder, A. H. Boyden, W. H. Sears, G. W. Gage, C. B. Farwell and W. Lill.

GREAT SNOW STORM.—On the line of the Union Pacific Railroad, between Cheyenne and Laramie, furious snow storms, about ten days ago, filled up the cuts upon the track, rendering the passage of trains impossible. Some passengers were eighteen days in getting from San Francisco to Omaha; they were well cared for, however, and experienced no hardship further than delay and, in some instances, rather a scant supply of provisions. The difficulty was caused by ice forming on the track, and the snow becoming packed in the cuts almost as solid as ice. The blockade has at last been raised and large mails are coming through from the East.

KANGAROO LEATHER.—Seven thousand Kangaroo skins, from Australia, have been purchased by parties in this city, who are tanning them at a tannery, located on the northern part of Oakland, opposite Yerba Buena Island. This is the first consignment of kangaroo skins received in this market. The skin of this animal is thin, but exceedingly tough, and makes very pliable, tough, and durable leather, which turns water better than alligator leather. Boots of kangaroo leather will be a new sensation.

AOREES WITH HIM.—It is said that President Grant, since his inauguration, has gained 26 pounds in weight. "On what kind of meat is our great Caesar fed?"

A HIGH COMPLIMENT.—One of the best known and talented lawyers in San Francisco says:—"I read them all, and the PACIFIC RURAL is the best agricultural journal in the United States."

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopathic and invalid use we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brix Lane, London. Export Chicory Mills, Bruges, Belgium. 1623-17

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book Keeping are taught. Terms: Board and tuition, 4 weeks, \$30. Students received at any time. GEORGE TARR, Oakland, Master Fifth Class. 269th St.

\$5 TO \$30 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Line, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowers, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mbp

## San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.

## PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

IRON.—Duty: Pig, 37 ton; Railroad, 60c 100 lb; Bar, 10c 100 lb; Sheet, polished, 3c 100 lb; common, 1c 100 lb; Plate, 1 1/2c 100 lb; Pipe, 1 1/2c 100 lb; Galvanized, 2c 100 lb; Scotch and English Pig Iron, 35c 100 lb; 32 20	
White Pig, 37 ton, 45 00	—
Refined Bar, had assortment, 100 lb, 04 00	—
Refined Bar, good assortment, 100 lb, 05 00	—
Boiler, No. 1 to 4, 05 00	—
Plate, No. 5 to 9, 05 00	—
Sheet, No. 10 to 12, 05 00	—
Sheet, No. 14 to 20, 06 00	—
Sheet, No. 24 to 27, 06 00	—
Horse Shoes, 7 50	—
Nail Rod, 9 1/2	—
Roller Iron, 5 00	—
Other Irons for Blacksmiths, Miners, etc., 5 @ 6	—
COPPER.—Duty: Sheathing, 3 1/2c 100 lb; Pig and Bar, 2 1/2c 100 lb	
Sheathing, 100 lb, 24 @ 26	—
Sheathing, Yellow, 24 @ 25	—
Sheathing, Old Yellow, 11 @ 11 1/2	—
Composition Nails, 24	—
Composition Bolts, 24	—
TIN PLATES.—Duty: 2 1/2 cent. ad valorem.	
Plates, Charcoal, 1 1/2c box, 12 00	—
Plates, 1 C Charcoal, 10 00	10 50
Roofing Plates, 11 00	—
Banca Tin, Slabs, 100 lb, 45	—
Steel.—English Cast, 100 lb, 16	—
Drill, 16	—
Flat Bar, 17	20
Plough Points, 3 75	—
Russia (for mould boards), 12 1/2	—
QUICKSILVER.—100 lb, 85	—
LEAD.—Pig, 100 lb, 05 1/2	—
Sheet, 08	—
Composition Nails, 10	—
Bar, 08	09
ZINC.—Sheets, 100 lb, 10	10 1/2
BORAX.—Refined, 25	30
Borax, crude, 5	—

## Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]  
SAN FRANCISCO, Thursday, December 14.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.  
City Tanned Leather, 100 lb, 26 @ 28  
Santa Cruz Leather, 100 lb, 26 @ 28  
Country Leather, 100 lb, 26 @ 28  
The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Robert Cal, 7 and 8 Kil, per doz, 35 00 @ 40 00	
Jodot, 11 to 19 Kil, per doz, 75 00 @ 95 00	
Jodot, second choice, 11 to 15 Kil, per doz, 60 00 @ 80 00	
Lemoine, 15 to 19 Kil, per doz, 85 00 @ 100 00	
Lerin, 12 and 13 Kil, per doz, 68 00 @ 70 00	
Cornellian, 16 Kil, per doz, 72 00 @ 70 00	
Cornellian, 12 to 14 Kil, per doz, 65 00 @ 70 00	
Omerau, 18 Kil, per doz, 54 00 @ 60 00	
Simon, 18 Kil, per doz, 63 00	
Simon, 20 Kil, per doz, 68 00	
Simon, 24 Kil, per doz, 72 00	
Robert Cal, 7 and 8 Kil, 35 00 @ 40 00	
French Kips, 100 lb, 1 00 @ 1 30	
California Kip, 100 lb, 65 00 to 80 00	
French Sheep, all colors, per doz, 15 00	
Robert Cal for Backs, 100 lb, 1 15 @ 1 25	
Sheep Roams for Topping, all colors, per doz, 8 00 @ 13 00	
Sheep Roams for Linings, per doz, 5 50 @ 10 50	
California Russett Sheep Linings, 1 75 @ 5 50	
Best Jodot Cal Boot Legs, per pair, 4 00	
Good French Calf Boot Legs, per pair, 4 50 @ 5 00	
French Calf Boot Legs, per pair, 4 00	
Harness Leather, 100 lb, 30 @ 37 1/2	
Fair Bridge Leather, 100 lb, 48 00 @ 72 00	
Skirting Leather, 100 lb, 34 @ 37 1/2	
Welt Leather, per doz, 30 00 @ 50 00	
Butcher, per foot, 17 @ 21	
Wax Side Leather, per foot, 18 @ 29	

GIVE YOUR OLD ADDRESS when you want the paper sent to a new one. We cannot afford to look over several thousand names to stop it at the former P. O.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

## JOHN TAYLOR &amp; CO.,

IMPORTERS OF AND DEALERS IN  
**ASSAYERS' MATERIALS,**  
Chemical Apparatus and Chemicals,  
Druggists' Glassware and Sundries,  
PHOTOGRAPHIC GOODS, ETC.

We would call the special attention of Assayers, Chemists, Mining Companies, Milling Companies, Prospectors, etc., to our large and well adapted stock of **ASSAYERS' MATERIALS**

—AND—

Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

WE ENUMERATE IN PART:

Assay Balances—L. Oertling, London.  
Assay Balances—Becker & Sons, Antwerp.  
Chemical Balances—Becker & Sons, Antwerp.  
Ore or Pulp Balances—Becker & Sons, Antwerp.  
Assay Weights—Grainger and Orammes.  
Bullion Balances and Weights.  
Humid Assay Apparatus.  
Iron Furnaces—Improved, Lined with Fire Brick for Cupelling and Melting.  
Tongs, Muffles, Cupel Moulds, Assay Moulds, Scorifiers, Roasting Dishes, Annealing Cups, French Clay, Assay Crucibles, Hessian (or Sand) Crucibles.  
Dixon's Celebrated Black Lead Crucibles and Covers—all sizes.  
Assayers' and Chemical Glassware and Assayers' Hardware—a full assortment.  
Steel Stamps for has cut to order.

ACIDS AND CHEMICALS.

Acid in carboys and bottles, commercially and chemically pure.  
Bi Carb Soda, Borax, Bone Ashes, Litharge.  
Assay Lead in bars, rolled and granulated.  
Black Oxide Manganese, Sodium and Sodium Amalgam, Sulphate of Copper, Quicksilver, and all Chemicals and Reagents required by Assayers and Milling Co's.

Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grainger and Grammes, will be sent upon application.  
24v23-4f JOHN TAYLOR & CO.

## Situation as Chemist Wanted.

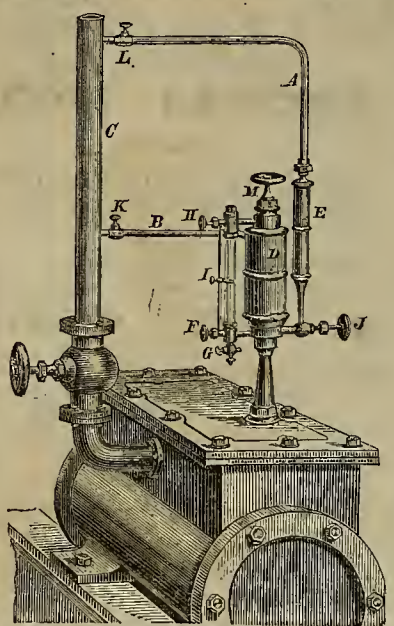
The undersigned, having completed the working course of Chemistry in La Fayette College, Easton, Pa., including Dr. A. J. Ores and Blowpipe Analysis, desires a situation requiring a

Practical Knowledge of Chemistry.

By permission refers to Dr. Traill Green, Professor of Chemistry in La Fayette College.

26v23-3m B. CHAMBERS, JR.,  
Chambersburg, Pa.

## N. Seibert's Eureka Lubricators.

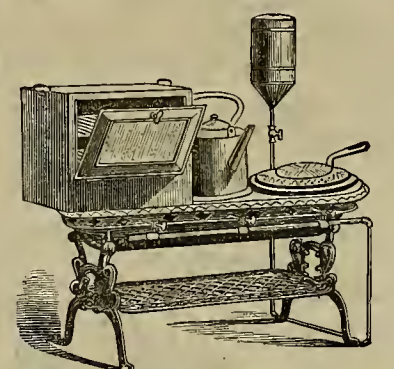


## THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopper; H, F, valves to shut off in case of frost; steam does not enter the cut; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23-4f

## THE IMPROVED AMERICAN VAPOR STOVE.



No Wood, Coal, Smoke, Ashes, Stovepipe nor Chimneys, and Perfectly Safe, Economy and Convenience combined.

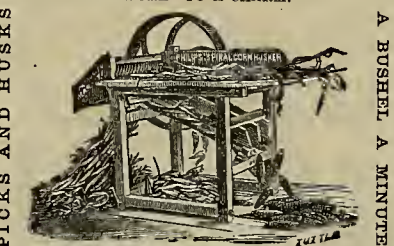
WILLIAM FRIEL, Manufacturer,

No. 69 and 71 Fourth street, S. F.

All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasoline and Patent Oil for Stoves and Lamps for sale. County Rights for sale. 10v23-3m

## THE MOST ASTONISHING Agricultural Machine of the Day.

IT WORKS TO A CHARM.



## WITH ONE HORSE POWER. Phillips' Patent Corn Husker.

Now for Sale in the Pacific States.

It took Six Premiums in the East in 1871, and a Diploma at the State Fair, Sacramento, Cal. Illustrated and described in the PACIFIC RURAL PRESS, November 25, 1871. Send for Circular. Machines and rights for the Pacific States for sale by

WESTER & CO.,

17 New Montgomery street, S. F.

W. H. GORRILL, Pres't.

F. MALOON, Sec'y.

## Pacific Bridge Company

Are prepared to build Wooden and Iron Bridges on SMITH'S PATENT TRUSS PLAN. Plans and specifications furnished to counties or persons desiring to build. Lithographs and prices sent on application.

Smith's Cast Iron Pier, durable as stone, and adapted to resist rapid currents, put in at low rates. Address PACIFIC BRIDGE CO., Oakland, Cal. 3v2-3m-cow

## J. S. PHILLIPS, M. E.,

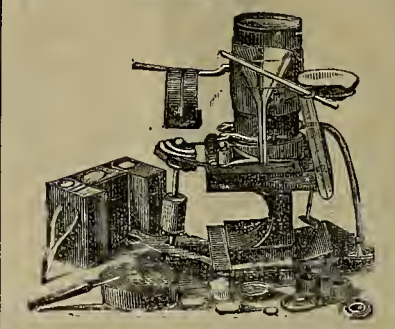
Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.

423 Washington street.....San Francisco

Author of "The Explorers', Miners', and Metallurgists' Companion."

Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the "PROSPECTOR'S" "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

Patented September 7, 1869.



Arranged for the general purposes of the Analyst and Assayer.

Price, with instructions, tools and fluxes, \$100.

Practical Instructions in all kinds of Assaying, Discrimination and Analysis.

20-v23-4f

## MINING BUREAU

—OF THE—

## Pacific Coast.

Sacramento City Office at Vice-Consulate of France. San Francisco Office, 331 Montgomery street (Steven's Building), Room 32, third floor.

J. BERTON, President.

E. P. HUTCHINS, Secretary.

N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.

THE

## Gutta Percha and Rubber Manufacturing COMPANY,

109 California street, SAN FRANCISCO.

Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose, Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Packing, Packing, Valves, Cocks, Pure Vulcanized Sheet Rubber, Fire Buckets.

12v23-3m

J. W. TAYLOR, Agent.

## Nevada Consolidated Borax Company—

Location of works, Columbus and Fish Lake Valleys, Esmeralda county, Nevada.

Notice is hereby given, that at a meeting of the Trustees of the above named company, held November 25th, 1871, an assessment of five cents per share was levied on the capital stock of said company, payable on and after the 30th day of November, 1871, in U. S. gold coin, to the Secretary, at the office of the company, No. 420 Montgomery street, San Francisco. Any stock upon which said assessment shall remain unpaid on Wednesday, January 10th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold at public auction on Monday, January 25th, 1872, to pay the delinquent assessment, together with the costs of advertising and expense of sale.

Office—Room 1, 3d story, No. 420 Montgomery street, San Francisco, California. J. L. SANFORD, Secretary. San Francisco, December 6th, 1871. d9-5c.

## Seaton Mining Company—Location of

works, Drytown Mining District, County of Amador, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 27th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	No. Shares.	Amount.
Ashburrow, Wm.....	51	1	\$20 00
Oashwiler, J. W.....	66	1	20 00
Grogan, A. B (not issued)		10	200 00
Haetings, B. F.....	67	10	200 00
Latham, M. S.....	60	5	100 00
Latham, M. S.....	61	5	100 00
Latham, M. S.....	63	5	100 00
Latham, M. S.....	65	4	80 00
McDonald, J. W, Trustee			
for J. W. Gashwiler.....	71	5	100 00
Pringle, Oeo C.....	70	5	100 00
Scott, Ed, Trustee.....	69	5	100 00
Tevie, Lloyd.....	48	5	100 00

And in accordance with law and an order of the Board of Trustees, made on the 27th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 438 California street, San Francisco, California, on the 30th day of December, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expense of sale.

JOEL F. LIGHTNER, Secretary.  
Office, No. 438 California street, San Francisco, California. 23v23-4w

## Tecumseh Gold, Silver and Copper Mining Company—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 5th day of December, 1871, an assessment of Three (\$3) dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 9th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, F. J. HERRMANN, Secretary. Office 516 Kearny street d9td.



## Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

## Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine County, Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of December, 1871, an assessment (No. 1) of 50 cents per share was levied upon the capital stock of said company, payable in United States gold coin, on the 15th day of December, 1871, to Henry C. Landis, 612 Clay street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 15th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. HENRY C. LANDIS, Secretary.  
Office, No. 612 Clay street, San Francisco, Cal. del-4w

## Altona Gravel Mining Company—Location

of works, Grass Valley, Nevada County, Cal.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 31st day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Amount.  
Beatty, Frank G. .... 17 200 \$0.00  
Beatty, Frank G. .... 271 18 4 50  
Cohn, L. B. .... 229 200 50.00  
Cohn, L. B. .... 264 18 4 50  
Dibble & Byrne .... 118 100 25.00  
Dibble & Byrne .... 119 100 25.00  
Dibble & Byrne .... 120 50 12 50  
Dibble & Byrne .... 272 23 5 75  
Dodge, D. F. .... 270 36 9.00  
Grant, Emanuel .... 246 7 1 75  
Hooper, Aaron .... 237 100 25.00  
Hooper, Aaron .... 273 9 2 25  
Joffe, E. B. .... 269 25 6 25  
Murbar, Martin .... 222 200 50.00  
Murbar, Martin .... 274 18 4 50  
Pinkham, S. .... 145 100 25.00  
Pinkham, S. .... 258 9 2 25  
And in accordance with law, and an order of the Board of Trustees, made on the 31st day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at No. 327 Montgomery street, San Francisco, Cal., on the 26th day of December, 1871, at the hour of 3 o'clock p. m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. del-9 3w

## Eagle Quicksilver Mining Company—Location

of works, Santa Barbara County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of October, 1871, an assessment of Forty (40) dollars per share was levied upon each and every share of the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any share upon which said assessment shall remain unpaid on Thursday, January 4th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, the 6th day of January, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
WM. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. nov-1td

## Mina Rica Mining Company—Location

of works, Auburn District, Placer County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 10th day of November, 1871, an assessment of twenty (20) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 2, 418 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the 18th day of December, 1871, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
GEO. H. SPINNEY, Secretary.  
Office, Room No. 2, third floor, 418 California street, San Francisco, California. nol-8 5w

## Ophir Copper, Silver and Gold Mining

Company—Location of works, Ophir, Placer County, California.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 23d day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Amount.  
Brush, R. G. .... 245 38 \$22.80  
Brush, R. G. .... 288 32 37 20  
Burford, H. L. .... 315 6 3 30  
Cuban, Chas. .... 316 100 60.00  
Brush, R. G. Trustee. .... 329 100 60.00  
Brush, R. G. Trustee. .... 331 50 30.00  
Curry, John. .... 213 10 5 00  
Kip, Jr., W. J. .... 237 600 300.00  
McCurdy, E. .... 173 23 14 10  
McCurdy, John R. .... 139 100 60.00  
McCurdy, John R. .... 190 12 7 20  
McAlister, C. J. .... 339 460 240.00  
Reynolds, W. O. .... 210 19 11 40  
Swain, H. C. .... 245 60 30.00  
Swain, H. C. .... 294 50 30.00  
Swain, H. C. .... 318 50 30.00  
Swain, H. C. .... 319 50 30.00  
Speyer, Richard. .... 309 24 14 70  
Torrance, R. J. .... 293 50 30.00  
And in accordance with law, and an order of the Board of Trustees, made on the 23d day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Son, No. 310 Montgomery street, on the 16th day of December, 1871, at the hour of 1 o'clock p. m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
R. G. BRUSH, Secretary.  
Office, 314 California street, San Francisco, Cal. del-2 5w

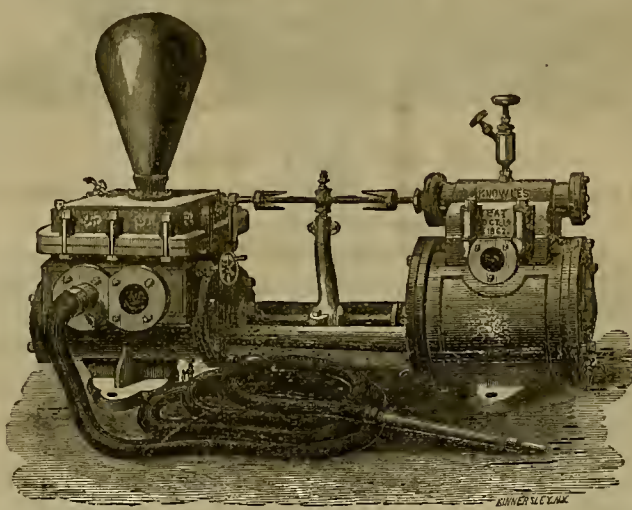
## Pocahontas Gold Mining Company—Location

of works, Mud Springs, El Dorado County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 24th day of November, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
D. A. JENNINGS, Secretary.  
Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal. del-2 5w

## KNOWLES' PATENT STEAM PUMP.

## Awarded First Premium and Diploma

Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Premium and Diploma at State Fair, and Gold Medal Recommended.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, CAL., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles' Steam Pump the best in use, and prefer it to any other.

Yours truly,

A. J. STEVENS, General Master Mechanic.

OFFICE OF PEOPLE'S TRANSPORTATION CO., PORTLAND, OREGON, April 22, 1871.

Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best Pump in use.

Yours respectfully,

G. MARSHALL, Chief Engineer.

OFFICE OF N. Y. CENTRAL R. R. ALBANY, June 3, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly,

C. P. HARM.

OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.

Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly

GEORGE M. REYNOLDS, Supt. Engineer.

U. S. NAVY YARD, NEW YORK, June 3, 1871.

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully,

WM. W. WOOD.

OFFICE OF THOMAS IRON WORKS, HOKENDAUQUA, Pa., June 1, 1871.

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc.,

EDWIN MICKLEY, Supt. of Mines.

OFFICE OF THE SAUCON IRON CO., HELLENSTOWN, Northampton County, Pa., May 26, 1871.

Messrs. KNOWLES & SIBLEY, New York—Gents: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given very great satisfaction, and that we like them better than any we have ever used.

Yours very respectfully,

G. W. WHITAKER, President and Superintendent.

OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly,

P. SAULT, Superintendent.

OFFICE OF RED BLUFF WATER WORKS, RED BLUFF, June 11, 1871.

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc.,

JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand.

24v22-cow

## Kincaid Flat Mining Company—Location

of works, Tolueme County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of December, 1871, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 17th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 17th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
R. H. CORNELL, Secretary.  
Office, 220 Clay street, San Francisco. del-4w

## Notice—The following described Certificates of Stock of the Piermont Milling and Mining Company were sold December 8, 1871, for delinquent assessment, and will not be transferred on the books of the Company—viz:

Certificate No.	Name	No. Shares	Amount
Certificate No. 20	Caugblin, Jerry	1750	shares
Certificate No. 18	Levert, Michael	1750	shares
Certificate No. 19	Godfrey, Richard	2625	shares
Certificate No. 16	Hutchinson, Wm. T.	583 1/2	shares
Certificate No. 17	McClure, E. C.	583 1/2	shares
Certificate No. 22	Perkins, J. E.	1500	shares
Certificate No. 13	Willson, James	1750	shares
Certificate No. 14	Willson, James	875	shares

San Francisco, Dec. 11, 1871. J. W. CLARK, Secretary. del-24

## Starlight Gold and Silver Mining Company—Location of Works: Humboldt County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 1st day of November, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Name	No. Certificate	No. Shares	Amount
Bee, A. W.	47	5	\$ 1 25
Bee, B. B.	358	50	12 50
Bee, B. B.	360	25	6 25
Bowman, James	5	25	6 25
Bowman, James	7	25	6 25
Bowman, James	8	25	6 25
Bowman, James	9	25	6 25
Bowman, James	10	25	6 25
Bowman, James	11	25	6 25
Bowman, James	12	25	6 25
Brenner, J. M.	437	30	7 10
Bryan, J. M.	198	5	1 25
Cobb, W.	368	25	6 25
Cobb, W.	369	25	6 25
Cobb, W.	370	25	6 25
Cobb, W.	371	25	6 25
Coffe, John T.	239	25	6 25
Coffe, John T.	426	1	3 75
Edouart, A.	137	5	1 25
Edouart, A.	138	5	1 25
Edouart, A.	139	5	1 25
Edouart, A.	140	5	1 25
Edouart, A.	141	5	1 25
Edouart, A.	142	10	2 50
Eoy & Chase	391	10	2 50
Furbush, E. M.	435	170	42 50
Furbush, M.	379	25	6 25
Furbush, M.	380	5	1 25
Furbush, M.	463	60	15 00
Furbush, M.	464	50	12 50
Gallaud, A.	388	10	2 50
Goldstone, John B.	172	5	1 25
Goldstone, John B.	189	5	1 25
Grant, Charles W.	487	50	12 50
Green, W. A.	22	25	6 25
Green, W. A.	23	25	6 25
Green, W. A.	24	25	6 25
Green, W. A.	25	25	6 25
Green, W. A.	26	25	6 25
Green, W. A.	27	25	6 25
Green, W. A.	28	25	6 25
Green, W. A.	29	25	6 25
Green, W. A.	30	25	6 25
Green, W. A.	31	25	6 25
Green, W. A.	32	25	6 25
Green, W. A.	33	25	6 25
Green, W. A.	34	25	6 25
Green, W. A.	35	25	6 25
Green, W. A.	36	25	6 25
Green, W. A.	37	25	6 25
Green, W. A.	38	25	6 25
Green, W. A.	39	25	6 25
Green, W. A.	40	25	6 25
Green, W. A.	41	25	6 25
Green, W. A.	42	25	6 25
Green, W. A.	43	25	6 25
Green, W. A.	44	25	6 25
Green, W. A.	45	25	6 25
Green, W. A.	46	25	6 25
Green, W. A.	47	25	6 25
Green, W. A.	48	25	6 25
Green, W. A.	49	25	6 25
Green, W. A.	50	25	6 25
Green, W. A.	51	25	6 25
Green, W. A.	52	25	6 25
Green, W. A.	53	25	6 25
Green, W. A.	54	25	6 25
Green, W. A.	55	25	6 25
Green, W. A.	56	25	6 25
Green, W. A.	57	25	6 25
Green, W. A.	58	25	6 25
Green, W. A.	59	25	6 25
Green, W. A.	60	25	6 25
Green, W. A.	61	25	6 25
Green, W. A.	62	25	6 25
Green, W. A.	63	25	6 25
Green, W. A.	64	25	6 25
Green, W. A.	65	25	6 25
Green, W. A.	66	25	6 25
Green, W. A.	67	25	6 25
Green, W. A.	68	25	6 25
Green, W. A.	69	25	6 25
Green, W. A.	70	25	6 25
Green, W. A.	71	25	6 25
Green, W. A.	72	25	6 25
Green, W. A.	73	25	6 25
Green, W. A.	74	25	6 25
Green, W. A.	75	25	6 25
Green, W. A.	76	25	6 25
Green, W. A.	77	25	6 25
Green, W. A.	78	25	6 25
Green, W. A.	79	25	6 25
Green, W. A.	80	25	6 25
Green, W. A.	81	25	6 25
Green, W. A.	82	25	6 25
Green, W. A.	83	25	6 25
Green, W. A.	84	25	6 25
Green, W. A.	85	25	6 25
Green, W. A.	86	25	6 25
Green, W. A.	87	25	6 25
Green, W. A.	88	25	6 25
Green, W. A.	89	25	6 25
Green, W. A.	90	25	6 25
Green, W. A.	91	25	6 25
Green, W. A.	92	25	6 25
Green, W. A.	93	25</	



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
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## Steam Engines and Boilers,

MARINE AND STATIONARY,

## IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S OEELEBEATED PATENT GOVERNOR.  
18v20-3m GODDARD & CO.

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MANUFACTURERS OF

## STEAM ENGINES,

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Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-47

## GEORGE T. PRACY,

## MACHINE WORKS,

109 and 111 Mission Street,  
SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State, that is to say:—

## STEAM ENGINES,

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QUARTZ MACHINERY,

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

## Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

## Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.  
4v23tt

## PACIFIC

## Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

## RAILROAD AND OTHER IRON

—AND—

## Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

## —ALSO— HAMMERED IRON

Of every description and size

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron. 9v143m

## THOMPSON BROTHERS,

## EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

## LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

## Miners' Foundry and Machine Works,

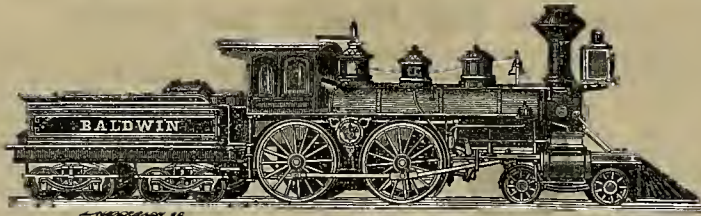
CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

I. L. MORTLHRAP, President. 7v23tt

## BALDWIN LOCOMOTIVE WORKS.



M. BAIRD &amp; CO., Philadelphia,

## MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

## Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

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EDWARD H. WILLIAMS,WM. P. HENSLEY,  
EDWARD LONGSTRETH.

WILLIAMS, BLANCHARD &amp; Co., Agents, 218 California street, San Francisco, Cal.

apl-6ow26t

## San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

## BOILERS

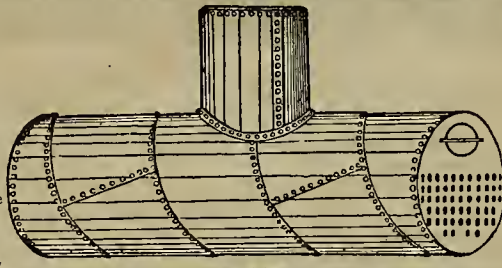
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CELEBRATED

## SPIRAL BOILER



21v22-3m

Sheet Iron Work

to every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

## JOBING

and

Repairing

Promptly Attended

to.

## To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

## THE GRICE &amp; LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and endorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. &amp; L. were the PATENTEE'S AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

## SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

## THE RISDON

## Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.  
CAPITAL.....\$1,000,000.

## LOCATION OF WORKS:

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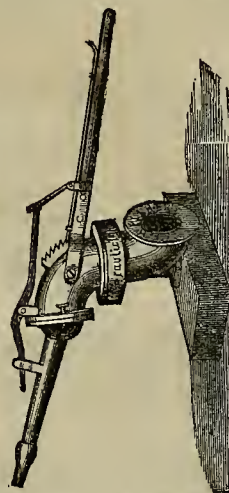
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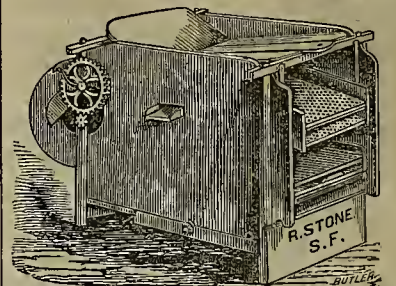
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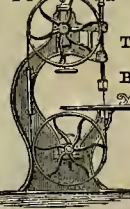
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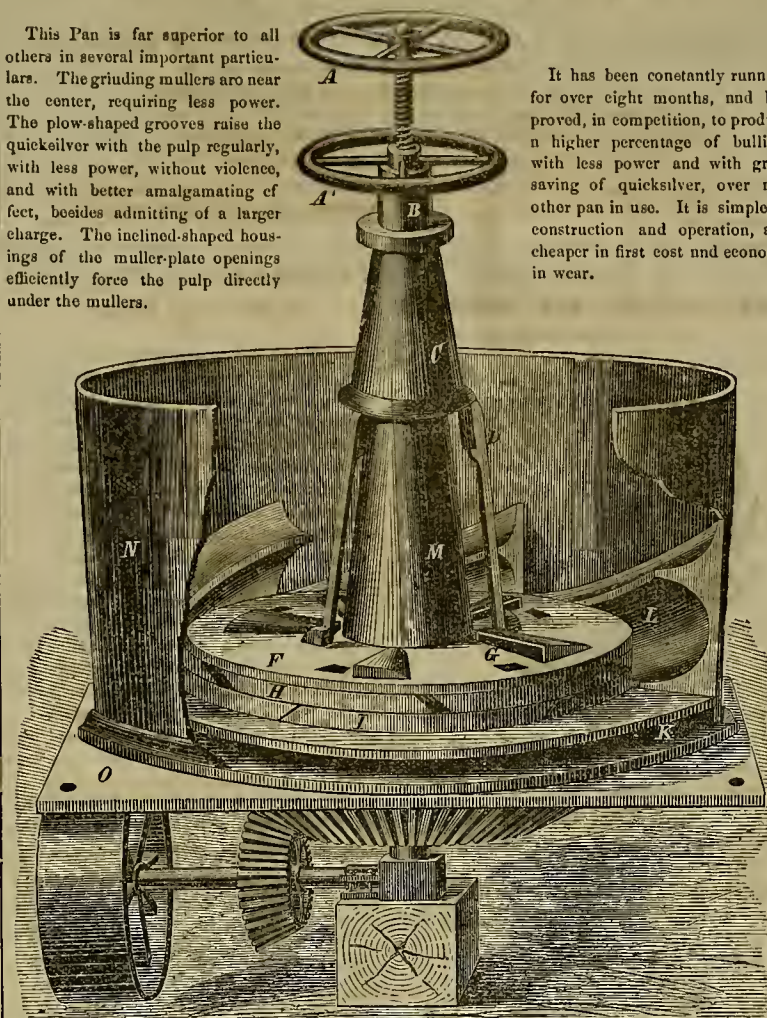
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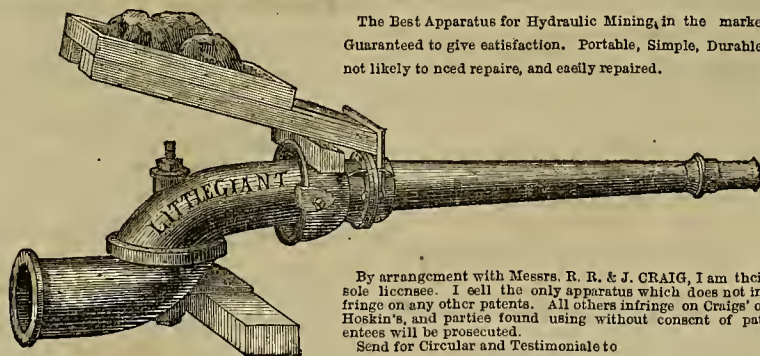


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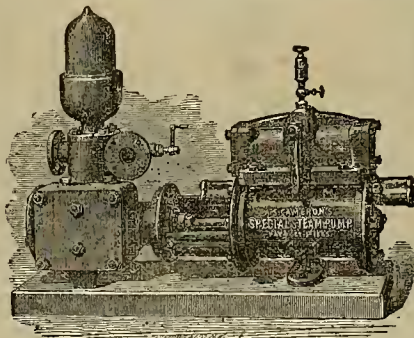
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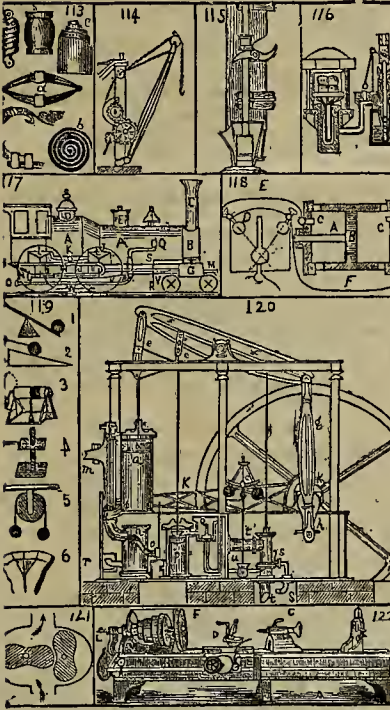


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dikes. Of carbonates, bonanzas, pockets, and floors. Of  
irregular sublimations, alluvial distributions, and sedi-  
mentary deposits.

6.—The supposed actions and reactions that have been and  
are continually taking place in mineral veins, pockets and  
deposits. How minerals were formed. How gold, platinum,  
and other similar metals were formed.

7.—The peculiar characteristics of "True fissure veins"  
and their constituent combinations. Positions, directions,  
and dips. General comportment when traversing different  
strata, when forming intersections and junctions with each  
other, or with cross courses, dikes and slides. Contrac-  
tions and general influence of cross courses, slides, and  
dikes. Summary of the effects produced by collective  
causes.

8.—The more generally recognized premonitory indica-  
tions, in the shallow portions of veins, for probable increase  
of mineral in depth.

Section II.—EXPLORATION.

CHAPTER I.—Prospection.

2.—How to explore.

3.—Where to explore.

4.—The peculiar kinds of the primitive and secondary  
rocks, that concern the miner, as being most congenial for  
rich veins; and what formations should be avoided.

5.—The prospector's and locator's preliminary exposition  
of the general features of a vein, so as to ascertain its ap-  
proximate value, previous to location and development by  
the miner.

Section III.—ASSAYING AND DISCRIM-  
INATIONS.

CHAPTER I.—Systematic preparation of the sample, to ob-  
tain average quality, for discrimination or assay.

2.—Description and general advantages of the "explorer's"  
miner's, miller's, and smelter's friend, the portable, "wee  
pet" assaying machine.

3.—New methods for the examination and assay of ores, by  
water-washed concentrations, sometimes perfected by acid  
solutions, or mercury, and completed, when necessary, by  
roasting, and fluxed fusion, with crucible, scorifier and ma-  
chine.

4.—The methods for discrimination, by blow-pipe or assay-  
ing machine, of such of the metals, metallic minerals, and  
earths, with their combinations; that should be known by  
the explorer, miner, miller, smelter, assayer, and metallur-  
gist for ores.

5.—Discrimination of the profitably useful minerals, by a  
new method, for practical men.

6.—An alphabetically arranged record of the effects pro-  
duced by water and fire, sometimes assisted by water and  
chemical re-agents on the minerals and such of their com-  
pounds as will be practically useful and profitable to the ex-  
plorer, miner, and metallurgist.

7.—Assaying of gold and silver, by ten different methods.

8.—Assaying of Lead.

9.—Assaying of Antimony.

10.—Assaying of Copper, by acids and by fire.

11.—Assaying of Tin, by water, acids, and fire.

12.—Assaying of Mercury.

13.—Assaying of Iron.

14.—Assaying of Manganese and Zinc.

15.—Assaying of Coals.

Section IV.—MINING AND ENGINEERING.

CHAPTER I.—Education of a Mining Engineer.

2.—Systematic and more extensive excavations, for the  
examination of the supposed rich vein.

3.—Mechanical Engineering, above and below the surface.

4.—The Cornish hydraulic engine; steam-pumping engine;  
pumps, etc.; hand and steam capstan, hoisting machines,  
tram-roads, and man engines.

5.—Deep mining, as facilitated by such machines.

6.—The Cornish crushing, stamping, running, jigging,  
budding, dressing, and roasting machines.

7.—Dry and wet concentration of ores, by hand, water, and  
acids; and by calcination.

8.—Preparing and sampling the ores for the market, etc.

9.—Contracts, setting, paying, and account days.

10.—The most important and more frequently recurring  
errors in mining, which may be more easily avoided than  
committed.

Section V.—METALLURGY.

CHAPTER I.—Roasting.—Roasting of peculiar ores, to re-  
duce their weight for cheaper conveyance to the market.  
Roasting refractory milling ores. Roasting to obtain the  
volatile element, in marketable purity. Roasting prepara-  
tory to chlorination, or other chemical reduction. Roasting  
for slags.

2.—MILLING.—By battery, with water and mercury. By  
battery, dry, for after treatment; by roasting and pan amal-  
gamation, by chlorination with Plattner's process, or other  
chemical manipulation. Milling with iron pans in copper-  
bottomed pans; in arastras; in the Chilian mill; and with  
close revolving barrels.

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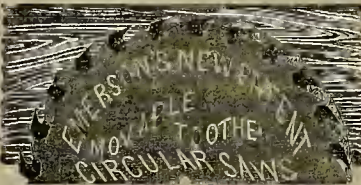
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Number 25.

## EBERHARDT AND AURORA MINING COMPANY.

The Eberhardt and Aurora Mining Co. own some of the principal mines on Treasure Hill, White Pine. The whole property amounts to 1,939 feet in all, of which there are 300 feet of the Ward Beecher, 839 feet of the North Aurora, and 800 of the Eberhardt mine. Patents have been obtained on the North Aurora and Eberhardt, and a patent has been applied for on the Ward Beecher. Our special correspondent, Mr. Murray, while on a visit to White Pine a short time since, visited the mines of the company and elicited a few points which may be interesting to our readers.

Of our illustrations, Fig. 1 represents a ground plan and Fig. 2 a longitudinal section of the mine. The most northern ore chamber, which is worked to the surface, is in the Ward Beecher claim. This chamber is 245 feet long, and 40 feet wide. The whip shaft *e, f*, is 76 feet deep. The chamber runs north and south. There are about 23 men on each shift at work in this chamber, and three shifts are run. There are only two heavy timbers to support the roof—all being a capping of solid lime rock. The general character of the ore is horn-silver and chlorides, resembling the old Eberhardt rock. The Ward Beecher lies between the Hidden Treasure and South Aurora mines.

The shaft in the "Ladies Chamber" is 122 feet deep, and the chamber is 50x175 feet. Depth from surface to floor 122 feet. From the floor to the dome, inside, is 55 feet perpendicular. It has been worked out in this shape to give it a form that will stand safely without timbering. The name was given to this chamber in honor of Mrs. Phillpotts, wife of the superintendent, who was the first lady ever down in the mine.

The ore in these workings continues down below the floors and the whole dips to eastward at an angle varying from 30° to 45°. The width of the deposit will average 40 feet. There are six shafts as represented in the cuts, and about 130 tons of ore are hoisted per day from the Eberhardt, North Aurora and Ward Beecher mines. About nine-tenths of all the rock taken out is good ore. The ore is hoisted out by steam and horsepower, which operation we shall endeavor to illustrate in a future issue. The 20-horse power engine for hoisting is the only one used for that purpose on the hill.

On taking hold of this property the English company sunk deeper, and worked further to the east, and found the continuation of the ore body worked by the former owners. A slide seems to have occurred on the hill from east to west, which carried the croppings a distance of 37 feet, misleading the miners as to the location

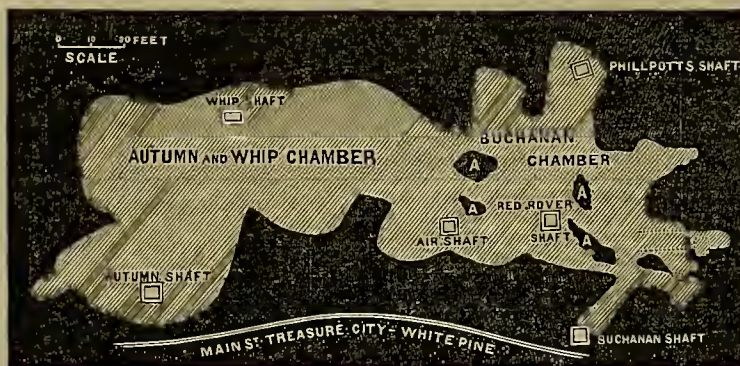
of the main body of the ore. The present owners have shown very good judgment and engineering skill, and proven that the ore in these large deposits runs down to an indefinite depth.

The deposit runs from the north to the south end of the hill dipping at an angle of 32 degrees, and is bounded on the west by a large spar vein dipping to the east at the same angle. This spar seam evidently forms the western boundary of the main ore-channel, running north and south in this hill, and Chloride and Bromide flats appear to be overflows from it, with small

A 16-horse-power engine at that place furnishes the power for passing the wire rope around the drum, the buckets passing up one line and down the other. The steel wire is suspended on posts, the highest of which is 130½ feet.

When first put up, it was found that the expansion and contraction of the wire and other causes made it difficult to operate, and some alterations were necessary. The tightening pulley was taken from the hill and placed below, where the slack was. The buckets carry 200 pounds of ore each at a trip, and the ore can be landed at the

Fig. I.



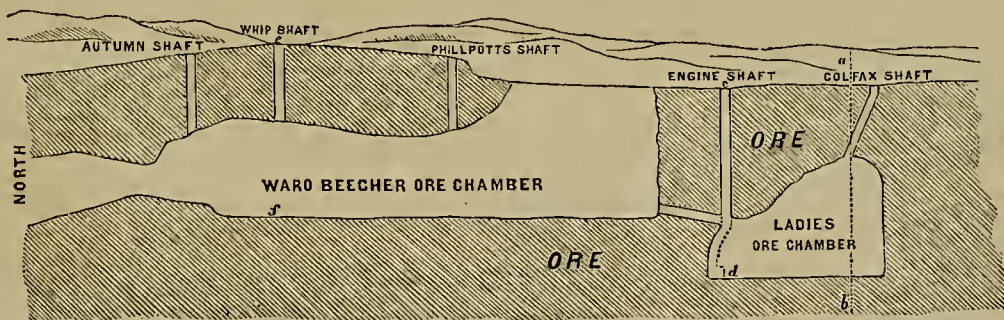
SECTIONAL GROUND PLAN.

east and west cross sections that vary from two inches to 20 feet.

This spar seam has some of the characteristics of a true fissure. Its structure may be termed banded, being made up of narrow bands or layers running parallel with the walls. The limestone strata have

mills below for a cost of from 75 cents to \$1 per ton. The tramway runs down Mahogany Cañon and over a very rough, precipitous ravine. It is the largest one of the kind in the United States, and the curves are easily passed; so that it answers the purpose of a railway, without the

Fig. II.



LONGITUDINAL SECTION.

a nearly corresponding westerly dip, showing that the spar seam cuts the limestone of the country rock almost at right angles.

In the Ward Beecher, the first ore was found at a depth of 80 feet. Although not so rich as the Eberhardt was in its best days, it far exceeds that famed mine in the quantity of high grade ore already produced, as well as that in sight.

The tramway belonging to the company, for the purpose of transporting ore to the mills at Eberhardt city, below, is one of Hodgson's patent, and 11,000 feet in length. The elevator at the top is 9,150 feet, and at Eberhardt city, the lower end, 7,150 feet.

necessity of embankments, tunnels or bridges. As it works at present it is a complete success, although it was a difficult matter to get it in successful operation. The whole cost was about \$120,000. A telegraph line runs up the hill, for convenience in signaling.

The company own two mills, the International and Oasis. The former is crushing at present about 80 tons per day, and the latter about 12. In the International there are two large engines, respectively 150 and 125 horse-power, to drive the stamps, pans and settlers. There are six large boilers to furnish steam for the engine

and pans. The mill has 60 stamps, 22 pans, 11 settlers and 3 agitators. The arrangements are very complete for doing the work, the pulp being taken from the batteries to the pans in cars. Stanford's patent self-feeders are also used. The Oasis mill has 10 stamps and 10 pans.

The Eberhardt and Aurora mines were purchased by this company for £150,000, and the Ward Beecher for £10,000. The International mill cost £51,024. The principal office of the company is in London, but a nominal one is established in this city.

Mr. Thos. Phillpotts is engineer and general manager; Mr. Williams, of Virginia City, milling superintendent; Jos. Potts, chief foreman of the mines on the hill; John McChrystal, foreman of the North Aurora; Wm. Davis, of the Ward Beecher, and John Goodfellow, of the Eberhardt. A large amount of money has been expended in developing these mines, and in mills and other improvements connected with the enterprise, showing that when our friends over the water do take hold of anything, they intend operating it in a thorough and systematic manner. The operations of this company have given new life to White Pine, and every honest encouragement should be given to English capitalists to invest in our mines on the Pacific slope, since they are likely not only to benefit particular localities, but the country at large.

**IMPROVED STREET CAR.**—The Omnibus Railroad Company, of this city, is about to put upon their lines a new kind of cars, which will obviate the necessity of having a conductor. A glass box is fixed in the front end of the car and the passengers deposit their fare or tickets therein in sight of the driver, who turns a crank, which throws the money from a shelf into the bottom of the box. This improved fare box has been invented by a gentleman in this city, and is said to be more simple and convenient than any now in use. It is already in use in Oakland and is said to work successfully. The cars will be smaller than those now in use, so that one horse will be sufficient

to do the hauling. The new car will be connected with the truck in such a manner that it can be turned on a central pivot or kingbolt without detaching the horse when the end of the line is reached. There are no platforms, entrance to the car being effected by means of a step at the door in the rear, just like the old-fashioned omnibus. These one-horse cars are used in several Eastern cities, and in New Orleans none others are in use. Several cars of the new pattern are being constructed and some of the old ones will be altered.

THE SHAFT on the Gould & Curry mine is down 1,500 feet—the deepest one on the continent.



# MECHANICAL PROGRESS.

## Fire-Proof Roofs.

Wiseacres theoretical, and practical men with hobbies to ride or axes to grind, have written elaborate articles on the merits of Joliet marble, Lake Superior granite, good lime, iron-joists, iron-shutters, etc.; but very little has been said about tar and gravel roofs, and galvanized iron cornices with wooden backing.

It has been claimed, that the tar, felt, and gravel covering, is absolutely fire-proof. The genial tar and gravel-roof builders will tell you so, and produce certificates from John Smith, William Jones, Richard Roe and other respectable citizens whose places of residence cannot be found on the latest postal route map, to the effect that they were present when an attempt was made to burn a fire-proof tar and gravel roof, of John Doe's patent. Mr. Doe is anxious to have you see for yourself; builds the roof and puts on a coating of gravel from an inch and one-half to two inches thick. The experiment proves an apparent success. Six or eight months or a year later, after the heavy rains shall have swept a large quantity of the gravel down the water-spout, examine the roof. Square yards of the roof will then be found to be as bare of gravel as an ostrich egg of hair. Black, ill-smelling pitch, blisters and swells, and gradually melts in the summer sun. A burning brand from a fire two blocks away lights on the roof; a gentle wind fans the flickering blaze into a ruddy glare; the house burns from garret to cellar, and the whole disaster is attributed to Providence, with rather indefinite allusions to Sodom and Gomorrah.

The galvanized-iron cornice, with the wooden backing, is another gigantic fraud. The Pacific Hotel, in Chicago, was ornamented with one. Wooden strips were inserted in the walls, and to these was tacked the galvanized iron. An exposed corner, where two or three inches of this wooden backing were visible, was seized upon by the fire on the fatal Monday morning, and in a few hours the proud building was gutted from top to bottom. The wooden strips, or cornice backing, communicated with the joists of the roof, and the building went down.

What is, then, a fire-proof roof? We answer: a roof made of tiles. These tiles can be made of good clay, laid in cement, or else of artificial pavement, similar to that put down last summer at the north-west corner of the Court House square. They are non-conductors of heat, and neither expand nor contract with the changes in our temperature. Being smooth, every rain storm washes them as clean as if done with a hose. Fire-brands are powerless to crack them; the wind cannot loosen them; snow drifts can be swept off as easily as from the pavement. They are impervious to weather, and are no more destructible by fire than a well-burned brick.

Galvanized cornices, where anchored to wooden strips in the wall, should be summarily condemned, and instantly removed by the fire authorities, and iron rods substituted for the wooden plates. Tar and gravel roofs should be rigorously prohibited from the fire limits, and, like shingle roofs, their use should be limited to isolated risks in the suburbs, or in the country.

Some experiments have lately been made at Sandy Hook, for the purpose of solving the problems involved in steam-boiler explosions. The experiments were highly interesting in themselves, and promise some excellent practical results. A boiler constructed exactly on the model of the one which burst on the Westfield, out of precisely similar iron, and as nearly as possible the counterpart of it, required a pressure of nearly two hundred pounds to the square inch to explode it, while that of the Westfield was carrying but twenty-seven pounds five minutes before the explosion, with its safety-valve weighed to thirty-five pounds.

**WANTED—STONE-QUARRYING MACHINERY.** In speaking of the stone quarries in the neighborhood of New York City, the *Times* says: "What is most wanted in these quarrying regions is a little more enterprise and tact; men who can invent and apply approved methods for handling and working stone. The problem of transportation also needs an infusion of brains and energy. Capital is also needed, but that is fast coming and will soon be plenty enough."

## Improvement in Architecture.

The earliest periods were characterized by the utmost simplicity of invention and construction. Later, the efforts for defence from enemies and for architectural display, which have always employed so much time and power, began to be made. The megalithic period has left traces over much of the earth. The great masses of stone piled on each other in the simplest form in Southern India, and the circles of stones planted on end in England at Stonehenge and Abury, and in Peru at Sillustani, are relics of that period. More complex are the great Hymyaritic walls of Arabia, the works of the ancestors of the Phœnicians in Asia Minor, and the Titanic workmanship of the Pelasgi in Greece and Italy. In the iron age, we find granitic hills shaped or excavated into temples; as, for example, everywhere in Southern India. Near Madura the circumference of an acropolis-like hill is cut into a series of statues in high relief, of sixty feet in elevation.

Easter Island, composed of two volcanic cones one thousand miles from the west coast of South America, in the bosom of the Pacific, possesses several colossal ent from the intrusive basalt, some in high relief on the face of the rock, others in detached blocks removed by human art from their original positions and brought nearer the sea-shore.

Finally, at a more advanced stage, the more ornate and complex structures of Central America, of Cambodia, Nineveh and Egypt, represent the period of greatest display of architectural expenditure. The same amount of human force has perhaps never been expended in this direction since, though higher conceptions of beauty have been developed in architecture with increasing intellectuality.

Man has passed through the block and brick building period of his boyhood, and should rise to higher conceptions of what is the true disposition of power for "him who builds for aye," and learn that "spectacle" is often the unwilling friend of progress.

No traces of metallic implements have ever been found in the salt mines of Armenia, the turquoise quarries in Arabia, the cities of Central America, or the excavations for mica in North Carolina, while the direct evidence points to the conclusion that in those places flint was exclusively used.

The simplest occupations, as requiring the least exercise of mind, are the pursuit of the chase and the tending of flocks and herds. Accordingly, we find our first parents engaged in these occupations. Cain, we are told, was in addition, a tiller of the ground. Agriculture in its simplest forms requires but little more intelligence than the pursuits just mentioned, though no employment is capable of higher development. If we look at the savage nations at present occupying nearly half the land surface of the earth, we shall find many examples of the former industrial condition of our race preserved to the present day. Many of them had no knowledge of the use of metals until they obtained it from civilized men who visited them, while their pursuits were and are those of the chase, tending domestic animals, and rudimentary agriculture.—*Prof. Cope, with Modern Scientists.*

**ECONOMY IN STEAM POWER.**—A Boston correspondent of the *American Artisan* states that he is running a twenty-horse engine constantly with the heat obtained from the exhaust steam of another twenty-horse engine, thereby doubling the amount of power previously produced by the consumption of a pound of coal. The apparatus used consists of a tubular boiler, twenty-six inches in diameter and ten feet long, with sixty 1½-inch iron tubes in it. This boiler is placed in an upright position and filled half full with bisulphide of carbon, and is heated by passing the exhaust steam through the tubes, from top to bottom. The steam is completely condensed in passing through; and the temperature of the water of condensation discharged at the bottom of the boiler does not exceed 120° Fahr. at any time. The latent heat of the steam is absorbed by the bisulphide of carbon, which is converted into vapor very rapidly under a pressure of fifty pounds to the inch. This vapor is used to drive the second engine, which does as much work as the first is doing. The bisulphide vapor after being used is condensed by passing through a coil of iron pipe immersed in water, and is pumped back into the bottom of the boiler as fast as condensed, and used continuously, the waste not exceeding half a gallon per day. Only forty gallons are required to work the engine successfully.

# SCIENTIFIC PROGRESS.

## Artificial Volcano.

Dr. Fred. V. Hochstetter furnishes an interesting account of a phenomenon occurring during one of the phases of a manufacturing operation, which is, as he claims, a complete duplicate, upon a miniature scale, of a volcanic eruption; and which serves, at the same time, to confirm the modern views concerning the process of an eruption; according to which the lava is not simply in a molten condition, but is reduced to the state of liquidity by the action of superheated water vapor under great pressure.

The phenomenon referred to occurs in the operation of separating the sulphur from the residual products obtained in the manufacture of soda by Leblanc's process. The sulphur obtained from these residues, in order to free it from the gypsum or sulphate of lime mixed with it, is melted in a suitable apparatus, with steam under a pressure of from 2—3 atmospheres. The gypsum remains suspended in the water, and the fused sulphur is from time to time run off into wooden troughs or forms, the temperature of the fluid mass being about 122° C. (251.6° F.). Almost instantly after the pouring, a crust of solid sulphur is formed on the surface of the mass. Dotted over this surface, however, the orifices are left, from which the liquid beneath is forced up. At intervals a jet of sulphur bubbles out, and cooling, forms around the orifice a slight prominence; the repeated eruptions accumulate material about it, until a miniature volcanic cone is formed, with its crater well defined.

The cause of this curious phenomenon is found in the fact that sulphur, in its fused condition in the steam chamber, takes up and retains a certain quantity of water; and this absorbed water, it appears, is given out gradually in the form of steam, as the sulphur solidifies. The slowly liberated steam, accumulating pressure beneath the crust of sulphur, forces, at regular intervals, an outlet at the vents, carrying with it in its passage the molten material to form the solid cone.

**SOUNDS FROM THE AURORA.**—It has long been an article of popular belief that the aurora is a roarer; that is, that it produces a sound more or less distinct. Scientific men, however, have generally been inclined to regard this auroral noise as a mere illusion. Loomis, in his excellent "Meteorology," says: "There is no satisfactory evidence that the aurora ever emits any audible sound. The sounds which have been ascribed to the aurora must have been due to other causes, such as the motion of the wind, or the cracking of snow and ice in consequence of their low temperature." But in a paper read at a recent meeting of the Academy of Science, of Paris, M. Becquerel expressed the opinion that the aurora really does make a noise, and in support of this view quoted the observations of Paul Rollier, aeronaut, who started from Paris in December last, and descended 14 hours after in Norway on Mount Ide, at an elevation of 4,000 feet; "I saw through a thin fog the moving of the brilliant rays of an aurora borealis, spreading all around its strange light. Soon after an incomprehensible and loud roaring was heard, which, when it ceased completely, was followed by a strong smell of sulphur, almost suffocating."

**COPYING PICTURES BY COLLODION.**—According to Mr. Kleffel, if a glass plate be coated with collodion in the ordinary manner, and, after the liquid has set, a piece of printed paper be pressed lightly upon the surface by the hand, a very exact reproduction of the letters or figures will be found impressed upon the collodion when the paper is removed, the design remaining perfectly visible after the complete drying of the film. It is suggested that this may be the germ of some important applications in the way of the reproduction of printed matter, without injury to the original.

**HYDROCHLORIC ACID AS AN ANTISEPTIC.**—A piece of meat, immersed for fifteen minutes in a mixture of one part of the acid to three of water, remained entirely free from putrefactive change after nearly a fortnight, though the action of the acid was not sufficiently powerful to prevent the appearance of a small quantity of mold. The meat was then immersed in a dilute solution of carbonate of soda, and the superficially absorbed acid thus converted into common salt.

**THE OPAL UNDER THE MICROSCOPE.**—At a late meeting of the Imperial Academy of Sciences in Vienna, Professor von Hochstetter communicated some microscopic investigations on opals, by Dr. H. Behrens, in which the author states that most opals are mixtures of various minerals, including a colorless fundamental mass, containing (microscopically discoverable), hydrophane-cacholong, quartz, hydrated and anhydrous oxide of iron, feriferous silicates, metallic sulphurets and carbonates, and organic substances; fire opal, glass-opal, noble-opal, and hyalite are free from admixture, and the first two are structureless. The colors of the noble-opal are interference-colors, caused by lamelle, which, however, are not tabular crystals. The double refraction discovered by Schultze in hyalite is caused by differences of elasticity such as occur in dextrin, amber, and compressed glass. The author also noticed the spheroidal structure which frequently occurs in opals.

**FLOATING OF SOLID IRON ON MOLTEN IRON.**—The following explanation of this paradoxical phenomenon is given in the *Scientific American* as a plausible one, to say the least: "According to the dynamical theory of heat, the molecules or particles of heated metals are in a state of great agitation, and the higher the temperature, the intenser the molecular motion. The difference in the specific gravity in melted and solid cast-iron being slight (as 31 to 32 nearly), this constant and fierce movement of the particles of the former prevents a block of the latter from sinking. An analogous action is found in swift running streams or eddies, upon which bodies of considerably greater gravity than water are supported for a long time, and also in the partial suspension of an egg in boiling water."

**A NEW GAS.**—M. Rouille Paris proposes a new method of gas-making, by which the article can be produced economically and with the simplest apparatus in houses, manufactories, etc. The inventor has given to this new illuminating agent the name of "gas autogene." It is formed of air and steam of essence of Petroleum. The apparatus is described as not only very simple, but as occupying only a very small space. An apparatus for example for the supply of 1,000 burners does not require more than a square yard, and for a less number in proportion. The gas is said to give a much more brilliant light than ordinary gas and to be much cheaper—in fact, that half a cubic yard of "gas autogene" gives as much light as a cubic yard of ordinary gas, and that it costs only three cents per cubic yard.

**HEARING IN LARGE CHURCHES.**—This is now made as easy as in the smallest, by the success of an experiment lately put in successful practice in Trinity Church, New York. It consists of a paraboloidal reflector of sound, placed at the back of the pulpit, of which the speaker's mouth is the focus. A beam of sound about ten feet in diameter is thus thrown to the most remote point of the church, and by its flow fills the whole body of the building. The structure is quite ornamental, and in harmony with the general architecture of the whole building. All great public buildings, whether for singing or speaking, may have similar arrangements adapted for their use. A person standing at the farthest door in Trinity Church can carry on a conversation with one in the pulpit, in the lowest tones, even in a whisper.

**THE SPECTROSCOPE AND THE NEBULAR HYPOTHESIS.**—Prof. Kirkwood says that the spectroscopic has demonstrated the present existence of immense nebulous masses such as that from which Laplace supposed the solar system to have been derived. It has shown, moreover, a progressive change in their physical structure, in accordance with the views of the same astronomer. In short, the evidence afforded by spectrum analysis in favor of the nebular hypothesis is cumulative, and of itself sufficient to give this celebrated theory a high degree of probability.

**PURIFYING BENZOLE.**—According to Professor Hoffman, benzole can be purified more readily than in any other way by first freezing it, and then subjecting it to pressure. For this purpose, it is placed in a tin or brass vessel, in which an iron rod having attached a close fitting piston perforated with numerous small holes is made to play. On forcing this down, the liquid portions are separated and can be drawn off, and on melting the frozen benzole, the hydrocarbon is obtained in a state of purity.



## CORRESPONDENCE.

### Mills and Mines at Dun Glen, Nevada.

EDITORS PRESS:—As I see, you request miners in different localities of the country to write you, and that this section shall not rest entirely dead, I have concluded to drop you a few lines from here. This section is at present only noted for having some good mines, dead mills and a possible revival. It is really a good mining camp, however, and is weekly advancing.

The Tallulah mine, 3 miles from here is one of considerable merit, the lode being some 3 to 4 feet in thickness. Considerable good ore has been extracted and shipped, which has paid as high as \$500 per ton. This company is now running a tunnel which will tap their lead some 300 feet from the surface.

The next mine of proportions and merit is the Old Lang Syne, owned by Sprague & Co. This mine has been worked by several companies, but with indifferent success, though the ore is in goodly quantities and of good quality. Sprague & Co., in order to overcome past difficulties have erected a 6-ton mill to work by the Paul process. The first test of several tons of ore from the Wentworth & Wright mine which is exactly of the same character as Lang Syne, worked by the process gave returns so far exceeding every one's ideas of the value of the ore that it has tended to give renewed life all around, and the mill is now having an addition of more machinery connected with this new process.

There being so much talk about the mill, I visited it a few days ago and had the pleasure of meeting Mr. Paul, the inventor, who is here seeing to the working and erection of the machinery. To give a description of the mill I hardly know how to begin, excepting to say that it is run by steam power, the cylinder being 12-inch bore and 36-inch stroke. The ore is reduced by a crusher and pulverized in a barrel which runs under heat and of such construction that it feeds itself and discharges as fast as reduced. From this barrel the ore goes into a hopper where that which is fine enough passes into a hopper to be amalgamated. From the hopper it goes into an iron amalgamating barrel about 3 feet in diameter and 5 feet long; only ore and quicksilver go into this and some chemicals; no water is allowed. So you see it is dry work so far. The ore after being thus amalgamated goes into a settler where the mercury is precipitated. To give a full description of these settlers and discharge of mercury which carries all the metal, would make more of a letter than you might want to publish. It is a settled fact, however, that the process does the business and Messrs. Sprague & Co. deserve the thanks of the mining community for having the enterprise to start in to overcome past trouble, and it is to be hoped they will be amply rewarded. As soon as the machinery now here is all in, the mill starts up on ore from Lang Syne and other mines.

There is another mill about a mile from Dun Glen known as the Essex Mill, which has laid idle for about a year because it would not pay to run it. This mill has steam power and pans as amalgamators, but with all the skill in amalgamating it could not work the ore satisfactorily. Mr. Paul worked some of the same ore as worked by this mill and his returns were \$3½ to every \$1 obtained by their pan working; and, while their bullion was base, Paul's was finer than coin by 65-1000. Mr. Paul's work thus far has exceeded even his own representations. There is nothing superfluous about it. The mill is very plain and handy without intricacy. Thus renewed life is being given to the district. A number of miners have started in working their old claims, and re-locations are weekly being made, for two reasons: First, they have a mill where they can get their ore worked; and, secondly, can get the metal out. I should not be surprised if in the next six months Dun Glen became a very lively camp. The ore here is a combination of gold, silver, lead, iron, and more or less arsenic and zinc.

The metal is principally gold, though there are some leads which carry considerable silver. There is a good show for

miners to get claims to work themselves; rich strata which will pay two or four men good wages.

Dun Glen is 9 miles from Mill City Station, C. P. R. R., contains one hotel, one store—Sprague & Co.'s—some 15 buildings, and at the same time several subscribers for the PRESS, which is ever welcome in a miner's cabin. HUMBOLDTER.

Dun Glen, Dec. 12, 1871.

### Mines Near Austin, Nev.

EDS. PRESS:—The mines at Austin are looking well, and more ore is coming out than there has been since the discovery of the district. It is destined to be a camp of considerable importance. At

Belmont,

the mines are very good, but the people are behind the times; the mines are opened in a very rude way. The most important ones are the Monitor, Mullen, Arizona, Canfield and Martinez, which are all doing well. There are two mills here, but only one running at present; it has a Dunderberg furnace. The bullion is very coarse, however, and the proprietor intends putting in a White furnace in the spring.

San Antonio

is about 30 miles south of Belmont. There are three companies working—the Grimes, St. Louis and Coten—all doing well. The ore is shipped to Austin to be worked. A mill is needed badly. I next visited

Montezuma,

fifty miles south. It is a flourishing camp of about 260 inhabitants, with the best working mines I have seen. The camp was started by McGlew and Dawley, who are well known in Nevada as millmen. They built a 10-stamp mill, which, for convenience, I think is the best I have seen in my travels, and is a model in its line. I understand from Mr. Dawley, that the property is about to change hands, at a satisfactory price, to a San Francisco company. The town is situated near the mill, on the western slope of the mountain, and has about fifteen houses. Jeremiah Miller, from White Pine, is the agent of the new company that propose to purchase the mill; he is well known as an expert millman, and is remarkably well pleased with Montezuma.

Silver Peak,

fourteen miles southwest of Montezuma, has a 30-stamp mill and some good mines. The mill at present is stopped for repairs, but will start up in the spring. I am informed a new 20-stamp mill is to be erected in the spring. J. A. W.

Austin, Dec. 6th.

### Smelting and Milling in Utah.

EDS. PRESS:—The manner of conducting these operations in this Territory has not led to the success which the extent and magnitude with which they were undertaken, promised.

The present unsatisfactory state may be partly accounted for by much of the ore being of a refractory nature, some of it being undoubtedly highly so; but the non-success or temporary failure may now justly be imputed to the desire of the operators to save first costs, and make their furnaces and mills do double duty—to both calcine and smelt, to chloridize as well as mill.

A better understanding of the requirements for success seems to be fast gaining ground, and Walker Bros., finding that their mill in East Cañon lost \$120 [per ton?] in the slimes, have suspended operations until the furnace in course of erection by Mr. Akin, of Nevada, is ready to calcine and chloridize the ore, which is not free-milling, but largely containing sulphides.

Of the smelters, the one at Diamond City, Tintic, has never even worked well; the ores used are considered the most refractory in the Territory, and it is now shut down, deeply involved in debt, to await further experiment. The Homansville smelter, also in Tintic, after continuously running for four months, has ceased operations for the winter. The want of ore of sufficiently high grade to make the working pecuniarily successful, is said to be the cause of suspension. Of the other sixteen smelting establishments in the Territory, those in the Cottonwooda, Stockton, and Bingham Cañon, have alone met with any success. Some have suspended temporarily; others have made due prepa-

rations by laying in a stock of fuel and various grades of ore for carrying on regular operations during the inclement season. The works of the Utah Silver Mining Company, better known as the Buel and Bateman, have closed for the winter, owing to the want of success attending the working of low-grade galena ores of the district without previous concentration and calcination. When the working capital of this company is increased, as it is expected it will be, and the mine properly developed and a calciner built, it is confidently expected that success will attend the working of these low-grade ores. It is earnestly to be hoped that these expectations will be realized, for upon the ultimate success of this venture largely depends the placing of much Utah property on the London market. H. S. Salt Lake City.

### Helena, M. T.

Helena is the metropolis of Montana Territory, and a thriving, busy town. I made quite a stay while there; visited the Agricultural Fair, etc. A company was formed during my visit, for the purpose of erecting reduction works, which have since been completed. These works are not only of local importance, but are of benefit to a large section of country.

Silver Mines.

Several hundred miners find employment in working the numerous silver leads in the surrounding mountains, and a number are prospecting for more; and from the considerable number of rich silver leads known to exist within a few miles of the city, and already sufficiently developed to demonstrate their value, I think that a number more will yet be found, which will doubtless make the reduction works a success. The buildings of the

Smelting Works

are 75x66, and 30 feet high, constructed of wood. There are four furnaces, with a capacity of working about 20 tons of ore in 24 hours. These furnaces are nine feet square and 40 feet high. Besides these, two cupel furnaces, for refining the bullion, are used. The engine is 40-horse power, and one of Root's blowers, No. 4, is used. At the time I was at Helena, 25 hands were employed, and charcoal was 17 cents per bushel; wood, \$4.50 per cord. The furnaces are built on the Castilian plan. Mr. Rumley, the efficient Superintendent, is sure to make the enterprise a success. This is a stock company, and the shares are all held by the citizens of Helena. Mr. Bohm has leased the works from the stockholders, his works at Argenta having been a success, which has encouraged him to take these.

The Park Ditch,

an enterprise which has been much talked of, is for the purpose of increasing the supply of water and making the placer mines more productive. It is under the direction of Col. A. M. Woolfolk, its principal owner, who is Superintendent. The dams at the Park lake are being strengthened by heavy timber work and raised one and a half feet. An artificial lake, one and a half miles long, is being constructed about a mile above. This new lake will hold about 30,000 inches of water, miners' measure. The delays in the completion of the ditch this winter caused the enterprise to fall below general expectations, but the new improvements will make it answer all requirements.

A steam flour mill is about to be erected in Helena, which will supply a want long needed.

The Getchell Claim,

in Last Chance Gulch, a short distance from town, embraces 600 feet on one side of the gulch and 900 on the other. It was purchased last July by a company of 17 Chinamen, who make about \$1.75 per day out of it—good wages for them. The gulch on which this claim is located is well known to many of your readers for its large yield of gold in former years. During my stay in Helena a large

Fire

occurred, in which one of our contemporaries, the *Herald*, suffered considerable damage, losing \$21,000, with only a small insurance. After the fire I noticed one of Hall's patent safes in the ruins of the *Herald* office which had gone through the fire with its contents, (books and greenbacks,) uninjured. This safe was in one of the hottest fires I ever saw, for about ten hours, and the burglar-proof lock was not damaged in the least, but worked just as well as it did before it was subjected to

the terrible heat. It is now as good as ever, but needs painting. This patent lock was illustrated in the *SCIENTIFIC PRESS* some time since.

Unionville

is about four miles from Helena. Near by are quite a number of good quartz mines, all doing well. The Diamond City Mill has 20 stamps; 2 arrastras and 1 settler. When I was there there were 300 tons of ore at the mill awaiting reduction. The Columbia and National mills are both doing well. The Whitlatch and Philadelphia mills of 15 stamps each were crushing and making profitable returns. There is a general air of prosperity about Unionville and the vicinity of the mills. Many new buildings are being erected and the miners generally are making themselves comfortable. The Columbia and IXL mines both show rich bodies of ore. W. H. M.

### Montana.

We have received from Governor Benj. F. Potts, of Montana Territory, an occasional correspondent of ours, his biennial message to the seventh Legislative Assembly at the session commencing Dec. 4, 1871, from which we make a few extracts, as it gives some idea of the importance of that remote Territory. In the census returns of 1870 the total population is given at 20,580, of which 14,582 were whites. Total value of real estate, \$4,272,766, and personal property, \$11,887,593. Number of acres of land under cultivation, 202,057. The Register at the Land Office at Helena reports that more than 300,000 acres of the public lands have been taken up by actual settlers within the last two years, and the Surveyor General's report shows that 3,324,705 acres of the public lands are now surveyed.

The Northern Pacific Railroad.

The rapid progress made in the building of the Northern Pacific Railroad assures us that it will reach our borders during the coming year. The contract has been let for the construction of the Dakota Division, from the Red River to Missouri, to be completed on the first day of July next. The Great thoroughfare is steadily advancing across the continent, opening up, as it progresses, the finest belt of undeveloped country in America. Every department of this great enterprise is reported to be in the most satisfactory condition, and its complete success, long since anticipated, is now a certainty. The completion of this road through the Territory will add new life and vigor to all our industries, develop our rich agricultural and mining interests, and our population, now at least twenty-five thousand, will be quadrupled in a brief period.

The Mining Interests.

The gold yield of Montana for 1870, was reported at twelve million, and it is estimated that the yield of 1871, will exceed that amount. A large number of rich silver mines have been discovered in the Territory during the past season, and those that have been developed yield satisfactory returns. The present active demand for mining property indicates the richness and substantial character of our mines. If any further legislation be necessary to advance the interests of the mining population of the Territory, you will, I am confident, supply it without any suggestion from me.

RUSSIAN VS. SIBERIAN APPLES.—Dr. C. Andrews, Marengo, Ill., comparing the Russian with the Siberian apples as they have been tested in this country, says: "All the Russian apples have not proved hardy. None but the Oldenburgh has stood the test as far north as St. Paul for any considerable number of years, and some of the most experienced nurserymen of that vicinity do not regard even that as wholly reliable there." On the contrary, he thinks all evidence goes to show the perfect hardiness of the Siberian family. Hundreds of new seedlings of this species are constantly coming into fruit, some of them extreme late keepers, and all accounts report them entirely hardy as far north as they have been tried."

THE SUN-SPOTS.—Prof. Daniel Kirkwood has announced that the period of the sun-spot cycle is gradually lengthening—it being a variable and not a constant figure; and he draws from this fact the conclusion that the cause of this phenomenon is not to be sought in the influence of the planetary bodies, for this influence, being constant, would preclude any variation in its effects; but it must be sought in some purely physical cause operating upon the sun's body.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**TARSHISH.**—*Alpine Miner*, Dec. 9th: Richer than expected was a lot of mundie and zineblende looking ore which came out of the Tarshish mine this week. A lot was assayed which yielded over \$1,500 per ton in gold and silver.

At the Tarshish mill work goes on at a favorable rate. The boiler was set this week, and the work of setting the battery blocks is commenced.

The viaduct for ore from the No. 3 mine of the M. & N. W. Co. will be done to-day.

**SCHENECTADY MILL.**—*Alpine Chronicle*, Dec. 9th: The work on this mill is progressing satisfactorily. The mine continues to show well.

**STOPPED WORK.**—The Exchequer mill has stopped work temporarily. The mine continues to improve and the Co. have any quantity of good ore. It is thought that the Co. will erect a new mill here next spring.

### AMADOR COUNTY.

**RICH ROCK.**—*Amador Dispatch*, Dec. 16th: A lot of remarkably rich rock was struck at the Kennedy mine last Saturday. A large portion of the rock will yield \$150 per ton.

### CALAVERAS COUNTY.

**BIG CLEAN UP.**—*Calaveras Chronicle*, Dec. 16th: A short time since we noticed that the tunnel claim of Paul & Co., near the Junction, was worked out. In the same item we mentioned the fact that it was expected the "tailings" would pay fully as well, if not better, than the gravel did at the first washing. Since then the work of washing the tailings has been commenced with good results. In cleaning up around the old dump-box—less than a week's labor—300 oz. of gold were obtained. At that rate the tailings will prove far more valuable than the original mine, making it one of the very best gravel claims in the county.

**RAILROAD FLAT.**—Parties from S. F. are negotiating for the purchase of the Prussian Hill quartz mine. Some very rich rock has been taken from this mine, and it is believed, if properly developed, it will rank as one of the No. 1 mines in this county. It is located south and east of Glencoe, on the narrow divide between the North and Middle forks of the Calaveras, and west of the great soap stone belt passing through the county.

The French claim, south of Prussian Hill mine, has developed some good rock.

The New Discovery claim, on the upper Calaveras, is going steadily down and good rock coming up.

The Poe mine is idle. The late purchasers will probably lay the mine over until Spring.

The Fifield and Burghart mine is now idle. A large pile of rock on the dumps was sold by the Sheriff and worked in the Randolph mill. Report says it milled \$16 per ton.

The Hard Luck mine, on the South fork, is yielding very rich rock. Some 40 tons are now on the dumps, good judges say, will pay \$100 a ton.

The Big Mine is a steady producing mine. It is between 200 and 300 ft. deep, and still going down and growing richer all the time.

### EL DORADO COUNTY.

**IRON ORE.**—*Placerville Democrat*, Dec. 16th: G. M. Anderson, who lives about one mile and a half north of the lower crossing of Webber creek, on the Coloma road, has hauled during the last 3 months 160 tons of iron ore to Shingle Springs to be shipped to S. F., thence to Baltimore, to be smelted. The yield is from 50 to 60 per cent., and inexhaustible quantities.

### INYO COUNTY.

**GOOD STRIKE.**—*Inyo Independent*, Dec. 9th: An extensive strike of rich ore is reported in the Whittekind, one of the leading mines on the other side of Buena Vista Hill, Cerro Gordo. The Belmont is also taking out more than usual quantities of good rock. In the Jefferson a good body of lead has just been opened, through the Buena Vista tunnel, and from the Omega tunnel about 20 tons of ore are coming from the newly developed cross ledge, daily.

### KERN COUNTY.

**CASTRO MINE.**—*Kern Courier*, Dec. 9th: The Castro mine is equal to any in the county. It is large, easily accessible, and gives strong indication of permanency. Further discoveries will probably be made

in the vicinity or other portions of the skirts of the valley.

### NEVADA COUNTY.

**PROSPERING.**—*Grass Valley Republican*, Dec. 16th: Considerable prospecting for quartz is going on between Deadman Flat and French Ravine, about 3 miles from town. The Independence Co. are running a tunnel for a ledge, which they will reach when they are in 200 ft. They have prospected the ledge on the croppings with satisfactory results. The Constitution Co. a short distance above the Independence, intend commencing a tunnel for their ledge in a few days.

**GREENHORN LEDGE.**—Eighty-two loads of waste rock from the Greenhorn crushed at the Gold Hill mill yielded \$882.

**PERRIN'S MINE.**—Some splendid specimen rock from the Perrin mine was exhibited here on Monday. The mine never looked better than it does now.

**GOOD GRAVEL.**—The Dartmouth Co. are taking out good paying blue gravel from their mine at the foot of School St.

**BANNER MINE** has temporarily suspended extensive operations. The mill was closed down on Saturday. The owners will continue to sink on the main incline shaft 100 ft. below the present level, which is down 620 ft.

The Kelsey Bros. are prospecting a ledge on Deer Mt. near the Banner mine. They are down with their incline about 80 ft., and have taken out 75 or 80 tons of good quartz. They have a 3 ft. ledge, and from a recent crushing of rock realized \$22 a ton.

**LITTLE GREENHORN.**—W. C. Stiles and others are prospecting a ledge on Little Greenhorn, south of Deer Mt. They have obtained excellent prospects and are running a tunnel to strike the ledge at a considerable depth from the surface.

**NEW YORK HILL MINE.**—The water in the mine will all be pumped out by to-morrow night. Miners are at work in the 4th. level taking out rock.

**OMEGA.**—A quartz ledge has recently been discovered near the Fidelity mine, which prospects well. A quantity of the rock was taken to the Fidelity mill, and crushed, yielding \$60 a ton. The mine is considered very valuable, but difficult of access. The owners of the Lindsey ledge, between Fall and Diamond creeks, are running their 10 stamps on \$20 rock. They have a ledge 12 ft. wide, and all the rock pays. The Co. will enlarge their mill next spring, and add ten more stamps. An offer of \$100,000 has been refused for the mine. A new quartz discovery has been made on Jim Dick ravine, which runs into Diamond creek. It is being opened by a S. F. Co. and prospects well. Extensive gravel diggings have also been struck at the head of Diamond creek.

**EUREKA.**—The Erie mine, near Eureka, has been paying well for the last two months. The owners of the Jim mine, near the South Fork, have their main tunnel in 650 ft. and have 350 ft. further to run before they reach the bottom of their incline shaft. Black & Young's mine is paying dividends regularly.

### PLACER COUNTY.

**GOLD HILL.**—*Cor. Auburn Stars and Stripes*, Dec. 14th: The Cement Mill Co. have already started up, having sufficient water for running the ponderous works, and unless the dirt is a cheat, they will continue to pound to a healthy tune.

**EMIGRANT GAP.**—*Cor. Placer Herald*, Dec. 16th: Mining that during last summer seemed so prosperous, was partially abandoned even before the late storm. Want of capital and energy has been the cause.

A quartz discovery was made, last month, 8 miles north of this place. The ledge is purely quartz, and is heavily studded with rich sulphurets, and shows free gold in considerable quantities.

### SAN DIEGO COUNTY.

**BULLION.**—*San Diego Union*, Dec. 7th: Bullion amounting to \$500 was sent by W. F. & Co's Express yesterday.

**AT THE MINES.**—The work on the water power at the Bailey mine is advancing rapidly toward completion. McMechan's mill will commence crushing Redman ore in a day or two. Both mills at Julian are crushing Owens rock, of which there are 130 tons ready.

### SAN BERNARDINO COUNTY.

**DISCOVERY.**—*San Bernardino Guardian*, Dec. 9th: J. Clark speaks very encouragingly of the richness of the McFarland Bros', and Height & Chalfields' claims at Ivanpah.

While in this dist., Mr. Clark spent most of his time prospecting in the range, on the "Snow Storm" side. We have been shown specimens of ore from ledges discovered by him, which equal, if not sur-

passing in richness, any ore yet found in that famous mineral region. Some of this ore—the cropping only—has been assayed at \$157, to the ton. These mines have been located in the name of the "Antonio G. and S. M. Co.," by Clark Lane and Anglesaw, and are directly on the line of the proposed railroad from San Francisco to the Colorado river, and 90 miles from San Bernardino.

**ORE RECEIVED.**—Brunn & Roe received this week for shipment, 3 tons of ore from the McFarland Bros' claim at Ivanpah. This ore assays from \$500 to \$1,300 per ton.

### SIERRA COUNTY.

**HIGH JOINT.**—*Mt. Messenger*, Dec. 9th: The High commission ledge, on the South Fork, owned by the Wehe brothers and Dr. Aiken, is turning out splendid rock. The chimney so far opened, is 30 feet in length and extending into the hill. The ledge is 3 feet in width.

**BALD MT.**—M. Redding, one of the owners of the Bald Mt. claim, at Forest City, informs us that the tunnel is progressing at the rate of 50 ft. per week. They have completed about 1,540 ft., and have 500 ft. further to go, to reach the shaft.

**FITTING UP.**—Mr. Curtis, in charge of the Good Hope mine, is making preparations to fit up the old Wheeler mill. He has purchased a Bodine water wheel only twelve inches in diameter, with which, under a pressure of 40 ft. he will run 8 stamps.

**CHESONVILLE.**—*Cor. same*: The Chaledonians have their underground engine and pumping gear in working order, and are taking out gravel. The Bootjacks are running their main tunnel ahead on a drainage level, preparatory to sinking another incline. Taber & Co., are still running their tunnel, now in bedrock, along the base of a projection of the main cement or volcanic ridge, coursing from Pilot Peak to La Porto, which ridge, a short distance ahead of this work, runs at nearly a right angle with said point and tunnel, so that the tunnel must soon find gravel within this angle, or pierce the main body of cement beyond.

The Union claimants have been able, during most of the season, to wash a small portion of their gravel; it has paid well. The same of the Nevada Co. The No Plus-Ultra front ground up in Whisky diggings, is not paying as well as desired; they, also, are running for that back lead. The Pilot Co. are making good headway. The bonded sale of the North American, Niagara and Vermont Claims, for the English market, still hangs fire. The North Americans, are working 40 hands. They are doing a prosperous business.

### YUBA COUNTY.

**BLAST.**—*Marysville Appeal*, Dec. 12th: A blast of 800 kegs of powder was put off in the Blue Point mine, Sucker Flat, on Saturday last.

## Nevada.

### COPE DISTRICT.

**FINE ORE.**—*Elko Independent*, Dec. 12th: Mr. Low, of Humboldt Wells, presented us with a fine specimen of carbonate ore taken from a ledge at Spruce Mt., which goes about 65 per cent. in lead and 10 per cent. in silver.

**RAILROAD.**—The Last Chance, a lead mine, contains silver with some bunches of fine copper ore and a slight percentage of copper promising some of the strata that compose the lode, which at the depth of 90 ft. is 21 ft. wide. A shaft is sunk on the lode 22 ft. below this, finding the same ore as in the 90-ft. level. It is the intention to run the tunnel on the vein still further to ascertain the length of the chute of pay ore.

The Ella is a copper mine containing mostly a blue carbonate, though now and then we noted black oxide mixed with the carbonate.

In the last 10 days 50 tons have accumulated waiting transportation, and they can now furnish 100 tons per week that will yield from 23 to 30 per cent of copper.

We noticed some rich looking galena ore on the dump of the Hussey tunnel, also on the Sweepstake. Work is still being done on the Humboldt, and Peyton. Campbell & Co. have started a tunnel on the southern side of the mountain near the Lyon mine.

**MOUNTAIN CITY.**—*Cor. same*: The Excelsior and El Dorado mines have proven to be permanent ledges. The Excelsior has been followed some 500 ft., in the tunnel and shows a fine body of mineral the whole distance. They have attained a depth of 150 ft. with the best defined ledge and the best looking specimens I have seen in the dist. The El Dorado seems to be a true fissure vein. The incline is down about 140 ft., and shows a well defined ledge and

the largest body of mineral that I have ever seen in this camp.

There are several mines being worked successfully, among which are the Ku Klux, Monitor and South Star.

The Independent which has been lying idle for some time, will resume operations on the first of the month. The Co. has been engaged in putting up a whim for some time.

Hendy is sinking a shaft on the War Eagle mines near the El Dorado, with a fair prospect of striking a rich chimney of ore.

### EUREKA DISTRICT.

**PHOENIX S. M. Co.**—*Eureka Sentinel*, Dec. 15th: The incline shaft in the Otho measures 95 ft. in depth, which in its downward course, reveals several distinct veins, or strata of ore, varying from 1 to 8 ft. in width, and containing mineral, working from \$60 to \$80 in silver and 40 to 60 per cent. of lead. The vein at the 40 ft. level, has been followed 119 ft. westerly, and 100 ft. easterly, showing splendid bodies of ore pitching north. On the dump we found 250 tons of assorted smelting ores.

The Jenny Lynch is immediately above the Otho, and is supposed to be a continuation of the same vein. It shows a continuous body of mineral from the surface to a depth of 50 ft., at which point a level was started and run a distance of 56 ft. easterly in a vein of ore, varying from 1 to 6 ft. in width. The total depth attained on this shaft is 98 ft., at which point a level has been run 31 ft. easterly on the vein, where a splendid body of ore has been struck, on which work is being vigorously prosecuted.

The vein of ore runs nearly east and west, pitching toward the north at an angle of 32 degrees. The value of the ore taken from here varies from \$50 to \$60 per ton in silver, with 40 to 60 per cent. of lead. There are now 175 tons of assorted ore on the dumps.

The EMPIRE MINE is near the Gen. Lee Con. on Adams Hill, and contains hard milling rock of very high grade. In the shaft is a splendid body of ore showing a width of 4 ft. valued at from \$200 to \$400 per ton in silver, and rich in gold. The average assay value of the ore from this mine has thus far been over \$100 per ton.

The Adams and Farren mine is one of the best properties in this dist. In the early working of this mine, an incline was sunk some 150 ft. in ore all the way, except for a distance of 30 ft. when the work was abandoned, and a perpendicular shaft was commenced. At a depth of 100 ft. a vein of ore was struck, averaging \$60 to \$80 per ton, proving to be of great extent, and, on continuing down from this level to the depth of 200 ft. several veins of ore have been cut, varying in width from 3 to 12 ft. There is one furnace in complete running order, and another is being built which can be put in operation in about ten days.

**LEMON MINE.**—This mine is looking better than ever, showing large bodies of ore.

**LEMON CO'S MILL.**—Notwithstanding the late bad weather, Mr. Crandal has been pushing things ahead with vigor. The mill building is completed and covered. The frame work for the batteries, stamps, pans, etc., is in place, and all things in readiness to receive the machinery.

**THE CONSOLIDATED.**—This Co. is busily at work repairing furnaces etc. The ore piled up now cannot be far short of 1,500 or 2,000 tons, and teams are coming in regularly every day laden with tons more of the same sort.

### ELY DISTRICT.

**MONTHLY SHIPMENT.**—*Ely Record*, Dec. 10th: During Nov. bullion valued at \$419,893.37 was shipped from Pioche.

**BULLION.**—W. F. & Co. shipped since Dec. for Meadow Valley Co. 48 bars, valued at \$52,340.07.

### HUMBOLDT.

**BULLION.**—Unionville, *Silver State*, Dec. 16th: Amount shipped from the Arizona mine, since our last issue, was \$6,003.

**WILL START UP.**—Capt. Page, owner of the Oreana smelting works, and the Montezuma mine, has sent forward a large amount of material, to be used at the smelting works at that place.

**DEEPER AND RICHER.**—At a depth of 100 ft., on the incline at the south end of the Arizona tunnel, the ledge has increased to 4 ft. in size, and is composed of a very fine quality of ore.

**FIRED UP.**—The roasting furnace at the tailings mill of the Arizona Co., was fired up on Thursday, and is in successful operation.

**MINE BONDED.**—Hon. T. Harris, has bonded his mine, in Sacramento Dist., for three months. The mine is looking ex-



2003. *Ch. 910* (400-4000) *Ch. 910* (400-4000)



### The Resources of Montana.

Midway between the Great Lakes and the Pacific Ocean, and embracing the elevated region whence flow, East and West, the head waters of the Missouri and Columbia rivers, and on the extreme northern border of the Union, lies the great territory of Montana, the largest, or one of the largest in the Union—covering three times the area of New York, the Empire State of the East.

A few years ago a small party of daring pioneer miners ventured into this far-off region in quest of the shining dust, which has brought so many thousands to the Pacific slope. Their search was eminently successfully, and others followed so rapidly that the fame of Montana soon became

which is thus opening up in this wonderful region is truly of national importance.

In order to place before our readers more substantial evidence of the productiveness of the soil of Montana, we have caused an engraving to be made of a lot of vegetables which were exhibited at her late Territorial Fair, and which were photographed for this especial purpose. Referring to the engraving:—

In the background is to be seen a fine bunch of celery. The onions on the ground in front of the cabbage are from six to six and a half inches in diameter. To the left may be seen a vegetable oyster. Turnips of very large size will be noticed on the squash and near the melons. Beets weighing from 8 to 10 pounds each can be seen near the melons, and tomatoes lie on the ground beside the onions. A large Chinese cucumber six feet long and 9½ inches

### Photographic Ghosts.

In last week's issue in an article in regard to photographic pictures, observed upon panes of window glass in houses in this city, which occasioned considerable excitement, we gave some facts in relation to the effect of certain gases and exhalations upon glass. Air and light are known to have a marked effect upon glass. Bluish or greenish glasses become by exposure colorless, and other glasses often become purple red from the oxidation of the manganese contained in them. Glass which contains lead suffers another kind of change in the air if sulphuretted hydrogen be present; and the surface of the glass becomes iridescent, exhibiting various colors and often fanciful images.

#### Spiritual Photographs.

In this connection we may call attention

political article in fact. In this case actinic rays had done their work before the glass was exposed to the camera.

By another mode of manipulation, a photographer may produce a ghost-like effect at pleasure; a sitter is allowed to remain in the focus of the camera only half the time necessary to produce a complete photograph; he slips quickly aside, and the furniture immediately behind him is then exposed to the action of the light; as a consequence, a faint or imperfectly developed photograph of the man appears, transparent or translucent, for the furniture is visible apparently through his body or head. With a little tact, a really surprising effect may be produced in this way. As a third variety, one negative may be placed in contact with another, and a particular kind of light allowed to pass through it for a time; there results a double picture on the lower negative.



MONTANA PRODUCTIONS.

world wide. Now about twelve millions of gold are annually taken from her mines; while iron, copper, coal and other minerals exist there in exhaustless abundance.

But it is not in her mines alone that her wealth is to be found. The distance of this territory from the great sources of agricultural productions recently induced a few experimenters to test the capacity of the soil of that region to meet growing wants of its increasing population for bread stuffs, etc. Experiment in this direction was also successful, and it is now believed that there are not less than 50,000 square miles of tillable land within the limits of the territory, which might be made to yield in the greatest abundance all varieties of cereals and root crops. Lands for grazing purposes are also of still greater extent and of the best quality as is fully attested by more than 60,000 cattle which now find pasture upon her thousand hills.

Under these circumstances it is not to be wondered that her population, scattered through sixty-two cities and towns, is increasing in a most rapid ratio, and one which will soon be greatly accelerated by the Northern Pacific Railroad, which will ere long pass through the entire length of the territory. The enterprise

in circumference is on the ground in front of all. The squash was raised by Bass & Bro., and is five feet five inches in circumference, weighing 85 pounds.

The two large cauliflowers in the middle of the picture were raised by E. H. Train, of Helena, and weigh 10 pounds each. The cabbage measured four feet in circumference. The turnips raised by J. M. Stewart, weighed 26 pounds. The potatoes, exhibited by N. Merriman of Jefferson City, averaged from 1½ to 3 pounds each and were from 10 to 12 inches in length. The watermelon, 2½ feet long, and 18 inches in diameter, came from the farm of Bass & Bro. The rutabaga turnips were also of large size. Stalks of rye and a specimen of seven-headed wheat will also be observed, raised by W. T. Mulligan. The corn was raised by Bass & Bro., and some of the Trophy tomatoes, seen upon the ground, by J. V. Stafford; the others by D. W. Curtis. The parsnips and cucumbers shown were very large and of excellent quality as was also the celery, which was raised by Capt. Cadage. Other contributions were made by J. H. Forbes, John Trobner and L. F. Marston. The photograph was taken by E. H. Train.

It is now shown that no inconsiderable part of the increase of gold in commercial channels is the product of the gold mines of Russia.

to the different ways in which secondary images, or as they are sometimes called, "spiritual photographs" are made to appear. We copy from the *London Photographic Journal*:—Photographers are acquainted with three or four different ways in which secondary images may appear in photographs. In the first place, when a sensitive glass plate has served its turn as a negative—as many paper positives as may be needed having been taken from it—the film of collodion or other prepared surface is removed from it, and it may then be used for a wholly new photograph. But it is found that unless great care be used, some faint traces of the former picture still remain, and these may appear as a sort of ghostly attendant upon the figure forming the second picture. One photographer, in endeavoring to utilize an old plate which had fulfilled its duty as a negative, could not wholly erase the image, wash or rub as he might; there was always a faint ghost of the person accompanying any subsequent photograph taken on the same plate. Dr. Phipson relates that a friend of his received at Brussels a box of glass plates, quite new and highly polished, each wrapped in a piece of newspaper; a lady sat for her photograph, taken on one of these plates, and both the photographer and the lady were astonished to see that her likeness was covered with printed characters, easily to be read,—the ghost of a

**IMPROVED DIAMOND DRILL.**—On last Saturday a trial of an improved diamond drill, made by A. J. Severance & Co., was had at the Miner's Foundry, before a number of persons interested in mining, among whom was Mr. Sutro, of the Sutro tunnel, at Virginia City. This kind of drill has heretofore been worked by steam or water power, but the new improvement consists in driving it by means of a force pump. The water was forced through hose with a three-quarter inch nozzle directly upon a small iron wheel known as Lind's Improved High-pressure Water wheel, and the result was, that two 1½-inch drills were driven at the same time through a granite block, at the rate of one inch a minute. The trial was pronounced satisfactory by all present, and it is thought that this drill may be adopted in the Sutro tunnel. The Miners Foundry have already built two of these machines, one for the American Mining Co., at North San Juan, and another for the Union Co., at Columbus Hill. The pump employed at the trial was Knowles' pump, and is said to be very effective for this purpose. The great advantage gained by the use of the force pump is, that the machine may be moved readily to all parts of a tunnel and in various directions, simply by lengthening and shortening the hose.



## ON THE ASSAY OF GOLD.

BY HENRY G. HANKS.

[Expressly for the Press.—Continued.]

The scorification assay is made without any previous roasting. The only reagents used are test lead and dry pulverized borax. The ore is mixed with these and fused in the muffle. I generally use for a charge a quarter of the assay ton, which is 7.291 grammes. If four scorifications are made, the amount of ore treated will be 29.166 grammes, which is the same quantity used in the crucible assay.

In mixing the assay, I use a wooden mustard spoon which holds about eight grammes of test lead. This spoon has a hemispherical cavity of a little less than half an inch in depth, and a level rim. With a strip of window glass or a knife blade the superfluous lead may be struck off, leaving a uniform quantity in the spoon. Previous to commencing scorification, a careful assay of the test lead must be made by cupelling several spoonfuls in separate cupels, accurately weighing the resulting buttons of silver, after which they must be dissolved in acid. If any gold remains, the lead is unfit for use, and it should be removed from the laboratory, lest it should be inadvertently used in the future. All lead contains silver, but should never be used for assaying if four of these spoonfuls contain more than one milligramme, for rich lead is unfit for use, for obvious reasons. Of course, the assay of test lead need only be made once. Knowing the amount of silver contained in one spoonful, and keeping a memorandum of the number of spoonfuls used, it will be easy to make the proper deduction at the time of calculating the final results.

Having weighed out four charges of ore, and transferred them carefully to the same number of scorifiers, four spoonfuls of test lead and one of borax are added to each. A sheet of writing paper is then laid on the mixing table, and the scorifiers placed upon it one by one while being mixed. This precaution is taken to prevent loss by portions being thrown out during stirring.

The mixing is done with a piece of sheet-iron four inches long and half an inch wide, or with a small steel spatula. The scorifiers are then ready for the furnace. Several may be placed in the muffle at once.

A peculiar-shaped tongs is used in handling the scorifiers, which is made by bending a piece of iron or steel double; the lower part terminates in a half ring, which grasps the scorifier, while the upper part is made longer, and extends quite across the top of the scorifier, and holds it tightly when the tongs are pressed together by the hand.

At first the assay is placed in the mouth of the muffle and allowed to heat gradually. When the first action of the heat upon the borax has subsided and beads of lead are seen to form, the scorifier is pushed back to the hottest part of the muffle, and a second one introduced in front. This is repeated until they are all in, or the muffle is full. The door of the muffle is then closed for a time, until the charges have fully fused. The scorifiers are then removed one by one, and while tightly grasped with the tongs, a strong horizontal, rotary motion is imparted to them, causing the slaggy covering to break and attach itself to the sides of the vessel, leaving a circular bare spot on the surface of the molten lead. This effected, they are replaced in the muffle, which is not again closed, but the draft of the furnace must be checked by shutting the lower door, which causes a steady current of air to pass into the muffle, sweeping over the assay and through the small openings, escaping up the flue. Scorification now commences; the borax causes the slag to become liquid. The oxide of lead is seen to form on the surface of the lead bath, moving with a play of colors to the ring of slag, which becomes more and more fluid as the operation progresses. Every particle of gold or silver passes to the lead and becomes alloyed with it.

After a time the slag—from the formation of litharge—becomes so voluminous as to nearly cover the lead. When this is the case, the lower draft is opened, the muffle door closed and the heat raised, to perfect fusion of the assays, which are then withdrawn by the aid of the tongs, and poured out into an iron mould, made expressly for that purpose. When cold, the slag is broken, and the lead button hammered into cubes and cupelled.

Sometimes, but not often, scorification assay work badly, and require more test lead, or more borax. Experience soon

teaches the proper addition to make. In either case, a spoonful is wrapped in paper and placed in the hot scorifier by means of a pair of cupel tongs.

If lead is added, a memorandum to that effect must be made, and the known quantity of silver it contains deducted while calculating results. The computation is the same as that described under the head of crucible assay.

It is sometimes required to determine the amount of free gold in a quantity of poor sulphurets or ore. Ten pounds, carefully sampled, is washed down in a pan or evaporating dish to a small compass, which is dried and transferred to a scorifier and treated, as described before. Care must be taken to dry without loss, and to crush every particle from the pan into the scorifier, while placed on a clean sheet of paper.

Very good results are obtained in this way. The only difficulty is the calculation of results with the ordinary weights used in the assay office. The easiest method is to weigh the gold in decimals of a gramme, and to multiply this by 200, which gives the number of grammes of gold in a ton. This amount is multiplied by the value of a gramme of gold, which has already been given.

In this case, as well as in that of the ordinary scorification, as first described, it will be necessary to melt the cupelled button with silver, and to boil in nitric acid, to obtain pure gold.

This scorification assay, which is equally well adapted for assay of rock containing gold, as for sulphurets, will be found easy to manage, and very correct in its results.

## Roman &amp; Co.'s New Store.

Roman & Co. have moved their large stock of books and their entire publishing business up town, into the Lick House block. Their new quarters are excellent. The shelving on either side is finished in our beautiful white cedar, which so closely resembles the laurel that it might be appropriately classed as its twin.

At the left of the main entrance, enclosed in glass cases reaching up to the handsome cedar cornice, is the department of sacred volumes and belles-lettres. Many of these books are in expensive morocco bindings. At the right, in glass cases also, is the select circle of the poets. Beautiful show cases occupy the middle space filled with an assortment of choice and handsome writing utensils, viz: paper weights, paper cutters, ink stands, rules, etc., etc.—the most elegant display in the city.

Roman & Co., are the agents of the American Sunday School Union, and their publications fill a large department in the new store.

In the center of the store is the office, neatly finished in paneled cedar about three feet from the floor, and surrounded with frosted panes glass, framed in light cedar mouldings. The clerks in this department have a full view of the store in either direction.

At the extreme end is the wholesale department with its desks, subscription office and sample tables. Among some of the specialties kept for sale at this popular house, we noticed particularly the initial stationery and monogram examples, the Bibles and prayer-books, and juvenile books.

Roman & Co., have published many of our California works, and have held out every inducement to authors that their facilities afforded them. They were the first publishers of the *Overland Monthly*—the first to bring out a sample of juvenile literature in the publication of the "Golden Gate Series."

We are happy to find them thus enlarging their facilities for business, and that they have opened such an elegant and handsomely appointed house.

The Acclimatizing Society held a meeting on Saturday evening, and appointed a committee to prepare a game law for the consideration of the Legislature. The law is intended for the protection of native and imported game from destruction by reckless "pot hunters."

The Society has had complete success in its acclimatizing experiments with trout, and will this winter introduce the black bass and several varieties of game birds into the State. Several thousand dollars have been expended in arranging the ponds and hatching houses, at the San Pablo ranch, fifteen miles from this city, and the enterprise never had a more promising outlook than at present.

The wine crop of Santa Cruz County will this year exceed 25,000 gallons.

## USEFUL INFORMATION.

SCIENCE PERFECTING SWIMMING.—Fred-eric Barnett, of Paris, has invented and patented a very novel yet simple apparatus for swimmers. The invention consists in supplying to man by art the apparatus which has been given to the frog by nature. For the hands he has a large membranous fin which is held to its place by loops passing over the fingers and a strap around the wrist. The surface presented to the water by these fins is so large as to add greatly to the effectiveness of the strokes of the arm, but not so large as to exhaust the muscular power. Their effect is to very much reduce the effort required to swim without them. But the greatest ingenuity is displayed in the form and fitness of the fins for the legs, which are attached to the ankles, and are so formed that they act upon the water, both in the movement of bringing the legs together and throwing them back. They act so finely in treading water, as swimmers call it, that one can really walk, if not on the water, at least in it. The difference between swimming with this apparatus and without it, is very much like the difference between rowing a boat with a handle and the blade of an oar. The old swimmer has no trouble in using the fins at first trial, and is surprised to find with what strength he can swim without exhaustion. He easily swims twice as fast with the apparatus as without it, and he can sustain himself for hours upon the water, or swim miles with it.

SOLIDIFYING AND MELTING POINTS OF FATS.—Dr. Wimmel, in *Poggendorff Ann.*, directs attention to the fact that many fats may be made to solidify at two different temperatures. Those fats which yield glycerine by saponification especially show this peculiarity; the temperature at which solidification occurs being lower than that at which melting takes place. When these fats, after melting, are allowed to cool, their temperature gradually falls to a certain point, where for a time it remains stationary, and then exhibits a certain rise as it becomes solid. The definite degree of heat at which this takes place, Dr. Wimmel proposes to call the natural point of solidification, as this point is less changeable than the melting point—a characteristic the direct opposite of that attending the change of water into ice. The fact that ice is formed at different temperatures has led to the adoption of the melting point of ice as a fixed point from which to measure degrees of heat.

CURIOUS EXPERIMENT.—Mr. Kroeger points out the following mode of determining which of two objects seen from a distance is further off than the other. Let the reader suppose two trees, for instance, standing in a line with the eye; if he moves his eye to the right, the tree which is nearer will appear to move to the left, and the other will seem to follow the motion of the eye. The experiment is curious, and may be easily performed, only taking care to make the eye move in a line perpendicular to that in which it previously was; that is perpendicular to the line which joins the two objects; then the object which follows the motion of the eye is the further of the two.

TO EXAMINE THE INTERIOR OF A CHIMNEY.—It often becomes desirable to examine the interior of a chimney. With the view of observing what may cause the annoyance of smoking. An exchange suggests that for such purpose a piece of looking-glass may be held in an aperture, for a pipe in the chimney wall at a proper angle. If the observer can see the light of the sky, he will also see the whole interior of the chimney, and any obstruction in the same. As most chimneys are straight and perpendicular, reflection will make the top opening clearly visible. Defects which may render danger from fire imminent may sometimes be thus observed and guarded against.

ANOTHER INTERESTING EXPERIMENT.—Take three bowls; pour into one cold water, into another hot water, into the third water that is neither cold nor hot; then place each hand respectively into the hot and cold, and now thrust both into the lukewarm. The hand that was first put into the cold water, will feel hot; and that which was in the hot water will feel cold, although both are exposed to exactly the same temperature. This simple experiment proves that the sensation of heat or cold is, to a great degree, relative, and teaches the lesson that to secure comfort, in extreme climate, we must neither warm ourselves too much in winter, nor cool ourselves too much in summer.

## GOOD HEALTH.

## The Pulse.

The number of contractions of the heart, measured by the pulse in any of the arteries, is liable to considerable variation within the limits of health, depending on differences of age, sex, muscular exertion, mental condition, state of digestion, and period of the day. As a general rule, the healthy human heart beats as follows, in the respective ages: at birth, about 100 times in a minute; during the first year, about 120; second year 110; third, 100; seventh, about 90; fifteenth about 80; during adult life, 70; in old age, 50 to 70. If the average of the adult male be set down as 70, that of the female will be about 80; in acute disease, the pulse often runs up to 140, and over; in chronic affection of the brain and heart, and under the influence of digitalis, and similar drugs, it may descend to 40 and even 20 per minute. Muscular exertion raises the pulse, the sitting posture, which requires considerable muscular action, increases it about 5 beats per minute above that of the recumbent position; the difference between standing and sitting is about 10 beats per minute. We have a practical proof of this in the phenomena of ordinary fainting; when the heart fails in the sitting posture, the person faints and falls, the less amount of muscular action required in the latter position enables the heart to recover its power, and the person returns to consciousness; nature, in such cases, puts an individual in the horizontal position, which, in itself, is generally sufficient for his restoration. From this we learn, therefore, that when any one feels faint, let him at once lie down, instead of fanning, and slapping, and wetting him in a seated posture. The great difference resulting from posture is also often seen in convalescence, in which an invalid, very comfortable when in bed, faints, and may even die, on assuming the sitting position. In bleeding a person, it is customary to have him sitting up, in order that the resulting faintness may be relieved by lying down; faintness thus produced in a horizontal posture might not easily be recovered from.

Mental excitement and the digestive process increase the frequency of the pulse.

## A Few Facts About Homeopathy.

Homeopathy having become quite a successful system of medical practice, we have thought it might be interesting to many of our readers, to note the following facts, which we gather from a late authentic report:—"Seventy years ago Hahnemann planted the small but vigorous shoot, and now behold its roots spreading into all countries. It is naturalized in Austria, Switzerland, Prussia, France, Italy, Russia, Germany, Spain, Brazil, America. In New York alone upwards of 400 qualified practitioners dispense it; in France, about 300.

In England, several hundred medical men openly practice Homeopathically, and the number is daily increasing. These medical practitioners and their lay supporters promulgate their principles through quarterly and monthly journals. There are also six Homeopathic Medical Societies for scientific discussion; four hospitals; seventy dispensaries for the treatment of the poor—a very large amount of public and gratuitous work, when we consider that it has to be carried on by about three hundred practitioners.

In the United States of America there are nearly 5,000 Homeopathic physicians; six colleges, several hospitals, and one or more free dispensaries in each of the large cities.

San Francisco has its share of Homeopathic physicians all of whom have good practice and as a body of professional men, rank high in the estimation and confidence of the people. The Homeopathic Pharmacy, on Sutter street, is a creditable institution, and is conducted on the plan of all the Pharmacies in the United States. The attending clerks are regularly educated for this branch of the business—if any one is desirous of gaining information upon Homeopathic subjects, they can call at the Pharmacy and find every advantage in the way of books, and communicative clerks to assist them. That the system has its favorable points to commend itself to the scientific mind and the sufferings of humanity, there is no doubt—that it has been attended with general success is an acknowledged fact. While Homeopathy is not an agricultural subject, we are ready to give every branch of interest and industry such attention as our columns will admit.



# Scientific Press.

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San Francisco:

Saturday Morning, Dec. 23, 1871

## Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, Dec. 21, 1871.—Legal Tenders buying 91½; selling, 92½. Gold in New York to-day, 105½.

## Table of Contents.

Eberhardt and Aurora Mining Co.—Ill.; Improved Street Car.....	385
MECHANICAL PROGRESS.—Fire-Proof Roofs; Improvements in Architecture; Economy in Steam Power.....	386
SCIENTIFIC PROGRESS.—Artificial Volcanoes; Sounds from the Aurora; The Opal Under the Microscope.....	386
CORRESPONDENCE.—Mills and Mines at Dun Glen; Mines Near Austin, Nev.; Smelting and Milling in Utah; Helena, M. T.; Montana.....	387
MINING SUMMARY.—Stock & Exchange Board; Market Report.....	388-9
The Resources of Montana; Improved Diamond Drill; Photographic Ghosts.....	390
On the Assay of Gold; Roman & Co.'s New Store.....	391
USEFUL INFORMATION.—Science Perfecting Swirling; Solidifying and Melting Points of Fat; Curious Experiment.....	391
GOOD HEALTH.—The Pulse; A Few Facts About Homeopathy.....	391
Additional Mining Legislation; Swamp and Overflowed Lands; Popular Lectures—The Chemical Age; Science Again Triumphant.....	392
Novel Publication; The Dollar Engine; Home Industries.....	393
DOMESTIC ECONOMY.—Tools for the Women; Resistance of Cats Without Killing Them; Mechanical Hints; Elements of Success.....	394
The Legislature.....	396

## Science Again Triumphant.

The Signal Service Department at Washington, telegraphed to this city on Saturday evening last, that a severe storm of wind and rain might be looked for on the Pacific coast the next day. Sunday dawned as had many other days just preceding, and few gave heed to the warning; but Sunday evening came, and with it rain-clouds and high winds and symptoms of an approaching storm, which as the night wore away, increased to a terrific gale which continued throughout the succeeding 48 hours—thus fully verifying the predictions of the signal officers, two or three thousand miles away. We have here another striking illustration of the progress made in meteorological science, during the few years past. The farmers and miners of the Pacific Coast have been both surprised and delighted with the result, and are ready to note the highest note of praise, if not something more substantial, to the "weather-wise" solons at the national capital. This remarkable instance of premonition, although the first successfully given on this coast, should be received as a hint that our people should take some active steps to utilize this important government service. Such premonitions might be made useful in other ways than directing farmers when to look for rain and mariners when to make provision for "heavy weather." In the Eastern States where the benefits of this system have been more marked, the observations are utilized for the public benefit by causing outline maps of manifold paper to be placed in hotels, telegraph offices and other public places, every few hours, wherein the courses of storms, even at distant points, are traced and exposed to public view. Why might not this arrangement be carried out in San Francisco.

## Additional Mining Legislation.

Defects in the Law of July 26th, 1866.

We learn, by private advices from our Washington correspondent, that the forthcoming Report of the Commissioner of the General Land Office will recommend some additional legislation upon the matter of adverse mining claims which often arise under the 6th section of the mining act of July 26, 1866, which provides:—

That whenever any adverse claimants to any mine located and claimed as aforesaid, shall appear before the approval of the survey as provided in the 3d section of this act, all proceedings shall be stayed until final settlement and adjudication in the courts of competent jurisdiction of the rights of possession to such claim, when a patent may issue, as in other cases.

The act is entirely silent as to the time within which, or the party by whom, the action shall be commenced in court for the determination of the question of right of possession; and in consequence the Land Office encounters much difficulty in reaching definitive action in cases, which frequently occur where neither the applicant for patent nor the adverse claimant is willing to take the initiative in judicial proceedings.

In the earlier cases of this kind it was ruled that upon the party out of possession should rest the onus, and that he should commence suit within a reasonable time after notice, or his claim should be considered waived; but a difficulty arose in enforcing this rule in this, that possession of mining property is frequently more constructive than actual; that both parties may have the constructive possession, but neither be in the actual possession; again, both parties may be in actual possession of and working the same lode, but at different points and under different locations and names, it not being known until development that the veins were one and the same. In such cases, both parties being in possession, the foregoing rule would of course be inapplicable.

The general rule now adopted by the office is that the adverse claimant shall institute the required proceedings in court, and that his failure to do so within a reasonable time, after due notice, shall be considered as a waiver of his claim; this ruling, however, being varied where, under the circumstances, its enforcement would work a manifest injustice to the adverse claimant; such cases, however, being exceptional.

### Another Source of Difficulty

exists in the fact that the diagram and notice required by law to be posted upon the claim for ninety days before survey are found insufficient to give proper information of the precise, or even the approximate area and boundaries of the surface ground claimed for the convenient working of the mine; adjoining claimants being consequently unable to determine, until the final survey is actually made, whether the claim for which patent is sought conflicts with their rights or not, and when they find that such conflict actually exists, their objections are frequently presented too late for consideration, as the law limits the filing of adverse claims to the date of the approval of the survey by the Surveyor-General.

It is suggested as a remedy for this evil that where an application is made for a patent for either a lode or placer claim requiring survey, the applicant should be required by law to first cause a survey to be made of the ground so claimed, in the proper manner, by a United States deputy surveyor; that the notice and diagram be made from this survey, giving its proper metes and bounds; that thereafter said diagram and notice be posted and published according to law for the period of ninety days, and at the expiration of that time, should no adverse claimant have appeared, the Surveyor-General will approve the survey so made in the customary manner.

The Commissioner thinks no reasonable objections could be offered by bona fide claimants to the adoption of the plan suggested; that the survey will certainly cost the applicant no more if made before than after the expiration of the ninety days; and adjoining or adverse claimants will then have the opportunity of knowing, from the corner posts of the survey, as well as from the notice and diagram, precisely what ground is claimed by the ap-

plicant for patent, thus enabling them, should a conflict exist, to set forth in their adverse filings the exact extent and nature of the conflict.

We have also been placed in possession of some facts, which we believe have not hitherto been published, with regard to instructions which have been issued in the matter of mining claims; the segregation of agricultural from mineral lands, and the present status of mining claims in school sections; all, or a portion of which we shall publish next week.

## Swamp and Overflowed Lands.

Important Decision by the Secretary of the Interior.

Our Washington correspondent under date of December 9th sends the following:

The Secretary of the interior in reply to certain questions propounded by the Commissioner of the General Land Office, in his letter of the 16th of August last, in the matter of the construction of the Act of Congress, of July 23d, 1866, "to quiet land titles in California," so far as the same relates to swamp lands, has, after careful review, rendered a decision in substance as follows:

1st. That the first three sections of the Act relate to lands which have been disposed of by the State to purchasers in good faith under her laws, and confirm to the State all such selections, except in the cases named in the proviso to the first section.

2d. That the fourth section secures to the State, as swamp and overflowed, all lands that are represented as swamp on the approved plats of U. S. Surveys that had been made prior to July 23d, 1866, or that should thereafter be made, and required all such lands to be certified over to the State in all cases where no adverse claim existed.

The U. S. Surveyor-General shall examine the State Segregation maps, in townships which had been surveyed by the U. S., prior to the date of the Act, to conform to the U. S. rectangular system, he shall construct and approve township plats accordingly.

That in all townships where the State surveys do not conform to the rectangular system, and in all townships which had not been surveyed by the U. S., prior to July 23d, 1866, the Surveyor-General is required to make segregation surveys of swamp lands, upon application, made to him by the Governor of that State and within one year from such application, and to report the same to the General Land Office; that in making these surveys he is to be governed by the best evidence he can obtain, and the State, if not satisfied with them, has the right to introduce testimony before the Surveyor-General and to appeal from his decision to the Commissioner of the General Land Office.

That the Surveyor-General, in the examination of segregation maps conforming to the rectangular system in townships which had been surveyed by the U. S., prior to July 23d, 1866, and to which there was no adverse claim, should not under the law take into consideration the quality of the land embraced in such segregation surveys, but should treat them as swamp, whether they were so in fact or not.

HIGH COMMISSION MINE.—Mr F. P. Wehe has shown us some very fine specimens of "free gold" ore from the High Commission mine near Downieville, Sierra, Co. The average width of the ledge is 3 feet. It was found from a "stringer" dipping north, about 200 feet below the ledge proper and on further prospecting the main ledge was found on which a shaft 30 feet deep has been sunk. A tunnel is now being run to strike the ledge at a considerable depth. There are now on the dump some 30 or 40 tons of ore that will average about \$40 and a number of sacks of specimens have been put away for safe keeping. The ore is very good and the mine looks well and promising. The owners are Dr. Aiken, Wehe Bros. and Mr. Barton.

# POPULAR LECTURES.

## THE CHEMICAL AGE.

[By Prof. EZRA S. CARR, of the Cal. State University, before the MECHANICAL ARTS COLLEGE, Mechanics' Institute Hall, S. F. Reported expressly for the PRESS.]

LECTURE 2. DEC. 16.—Professor Carr, after announcing that there would be no lecture next Saturday evening, said that the present one would deal mainly with the "Chemical Age, or the First Chapter in the Earth's History." He said that Geology was the Earth's History, written by itself on the rocky strata, in the nature and character of the elements and in its physical features, so plain that "he who runs may read." History is but development, and development implies plan—mind and intelligence. To the true scientist, matter is but the manifestation of His spirit, the expression of the Divine will and the laws of Nature but the modes of the Creator's operation. Let us look at this open language of the Creator, let us read some portion of this in the light of chemical knowledge and learn the first chapter in the earth's history. Shakspeare divides the life of man into seven ages, let us divide that of the world into the same number: 1st.—The chemical age; 2d.—The Age of Mollusks; 3d., of Fishes; 4th, of Coal Plants; 5th, of Reptiles; 6th, of Mammals; the 7th culminating in the Age of Man. Chemists have determined that the entire world, including the air, water, and all solid minerals are composed of 65 forms of matter. The professor, by the use of the blackboard, enumerated the 65 elements comprising the earth, and gave their relative proportions. He repeated some of the experiments of the last lecture in connection with the properties of oxygen.

So far as the world is concerned, to interpret it aright, we must know the elements of its parts. The elements were created before the compounds could be made and when they were first brought into existence and became combined in different proportions, the action must have been very wonderful. From a few simple experiments with the different substances which have an affinity for oxygen, we can form some idea of what the first act of creation must have been. As oxygen has already been considered we will now take up

### Silicon.

This substance, in combination with oxygen forms silicic acid, or, in other words, quartz, which exists abundantly in Nature. Silicon is a dark brown body never found in Nature uncombined, having a strong affinity to oxygen. In combination with other substances it forms about one-quarter of all the solid material of the earth. Heated in oxygen or air it burns, forming silica.

### Aluminum.

A light body not easily melted, having a metallic luster, and burns, when heated in the air, with a bright light, forming alumina. Very abundant in Nature. This metal alloyed with copper, forms a valuable compound very nearly resembling gold and used in the manufacture of jewelry, etc. The compound called bell metal resulting from this alloy contains 10 per cent. aluminum and 90 per cent. copper.

### Magnesium

is a white metal, malleable and brilliant. It fuses at a red heat. Does not exist uncombined with other substances. By burning it in the air it emits a brilliant light showing how readily it unites with oxygen. Potassium, Iron, Sodium and Carbon all combine readily with oxygen.

### Potassium

has to be kept in vessels free from oxygen such is its strong affinity for that element. It is soft like putty and readily tarnishes. When exposed to the air it is gradually converted into a white brittle substance called potash. When heated in air it burns with a violet-colored flame. It floats on water which it decomposes by taking away the oxygen to form oxyd of potassium, liberating the hydrogen which burns with a portion of the metal, as you see by this experiment.

### Carbon.

Oxygen unites with carbon at a red heat and also when exposed to the air. In the process of burning it combines with oxygen and forms carbonic acid gas. This gas is heavier than air except when in a heated state. I have in this bottle a little carbonate of lime or common marble. By bringing it in contact with hydrochloric acid, (any acid would do as well) car-



bonic acid gas is eliminated. Being  $1\frac{1}{2}$  times heavier than air it does not support combustion. By dipping out some of this gas in this little glass bucket and pouring the invisible substance on a lighted taper it is extinguished, as you see.

#### Hydrogen.

I have in this vessel some zinc and water. By pouring in some sulphuric acid, the hydrogen is set free by the consequent decomposition of the water. No heat is required in this operation, as you see. I prove the existence of hydrogen by lighting the gas at the end of the tube. These soap-bubbles, by rising, show that it is lighter than air. It is explosive, as you may see by holding the taper to the mouth of this inverted jar of hydrogen. It is a combustible body. The union of this body with oxygen, in the proper proportions, forms water. If we decompose water, we will have as a result twice as much hydrogen as oxygen. It is explosive when brought suddenly in contact with the air and heat. This I demonstrate by putting some of the gas in this basin and making hydrogen bubbles, which, as you see, explode with a loud noise.

#### Phosphorus.

Artificial heat in these experiments is not always necessary. I have here a solution of bisulphide of carbon and phosphorus. On the evaporation of the bisulphide of carbon, the phosphorus ignites the paper.

#### Chlorine

is generally found in combination with sodium in the form of common salt. I put this piece of antimony into the jar of chlorine, and it burns violently without the necessity of heat. There are certain elements which unite without an elevated temperature. The Professor illustrated some of the bleaching properties of the element by bleaching the color out of a piece of cloth, and the black from a vial of ink. With hydrogen it forms hydrochloric acid.

#### Sodium

has to be kept from the air. If unites with chlorine to make salt. This vapor in the bottle, the result of the burning of the sodium in the chlorine, is common salt.

Thus we have seen that the great mass of the earth consists of oxygen compounds; that the rapid union of oxygen with other elements constitutes combustion; that water is the burned product of hydrogen, magnesia of magnesium, lime of calcium, alumina of aluminum, silica of silicon, carbonic acid of carbon, and phosphoric acid of phosphorus. In most of these experiments, a certain amount of heat was necessary to start the combustion. But we have also seen that in some cases where the substance was minutely divided, union took place at ordinary temperatures, and that in all the experiments, light and heat were produced in proportion to the intensity of the action. If we now assume that the elements were created before their compounds (which is equivalent to assuming that the sand and clay existed before the bricks in these walls were made), endowed with their well-known properties and projected into space in their atomic condition, a condition most favorable for chemical action—you will at once see in the light of these experiments the inevitable result.

The attraction of gravitation would draw the atoms together; chemical affinity would combine them, and we would have a conflagration compared with those of this lecture, as the few grains of matter I have used compare with the mass of the globe.

From the heat thus produced, our Earth would be a vast aeriform body, a blazing luminous star, in which condition we will leave it for the evening.

#### A Novel Publication.

We were shown a few days since a new idea in the way of advertising, consisting of a book, handsomely bound in blue and gold, containing about 100 pages of interesting matter comprising tales, sketches, poetry, witticisms, etc., chiefly by California authors. The remaining 200 pages are devoted to descriptions of the business of those who subscribe for the work, making it a sort of directory of the Pacific Coast; containing a few of the principal houses in each branch of business in the leading towns of California, Oregon, and Nevada.

The names of the towns appear in alphabetical order as do also the kinds of business in each town. The names of the firms are arranged in the same way, enabling one to see at a glance who are the principal dry goods dealers, photographers, jewelers, manufacturers, etc., in any place on the coast.

The books are to be given away by the parties who have descriptions of their business in them. By paying \$50 for one page, 40 books are received to be distributed as the advertiser chooses. So every page thus disposed of will represent 40 copies in circulation.

The advertisements are to be descriptive of the business, in order to be made readable, and nothing in the nature of an ordinary advertisement will be inserted in the body of the work. It is compiled and published by Price & Haley.

#### The Dollar Steam Engine.

Our illustration represents a simple piece of mechanism, in small compass, called the "Dollar Engine." It is made more for boys who have a mechanical taste, than for any other purpose. It is a single cylinder oscillating engine; the cylinder takes steam at both ends. A safety spring acts as a safety valve, which renders explosion impossible. The boilers have copper bottoms. The stand is movable, so that the engine may be run by removing the stand and placing the boiler upon any heating surface.

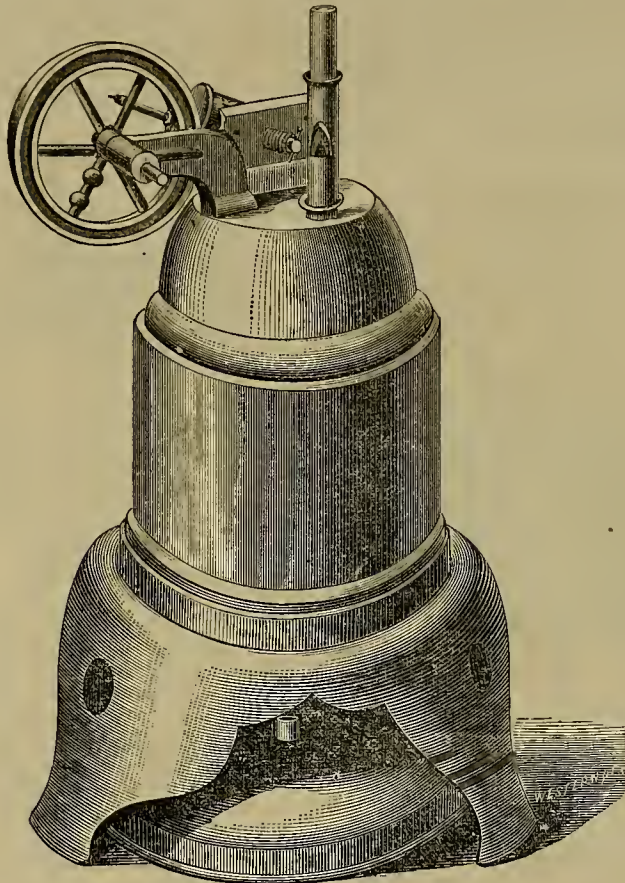
The engine will run  $1\frac{1}{4}$  hours with a flame at ordinary light. The boiler has a steam dome and concave bottom, the latter giving large heating surface and consequently an abundant supply of steam which insures great speed and power. The bottom of the lamp is turned up so

Martin, and by a regular chain of assignments conveyed to the plaintiffs. A complaint in equity, alleging the same facts and for the same purpose, has been filed against David Thornb, George G. Allen and Thos. Watson.—*Bulletin*.

#### Our Home Industries.

##### San Francisco Glass Works.

This establishment is located at foot of Fourth street, Newman & Duval proprietors. During a recent visit we found them busily engaged in making demijohns, earthenware, wine, and mineral bottles, etc., which seemed fully equal to the imported articles. About thirty men and boys are employed, and arrangements are being perfected to manufacture patent fruit jars for the coming season. We learn that none but the very best jars will be introduced. Acid bottles with glass stoppers are also made, a new thing



THE DOLLAR STEAM ENGINE.

as to form a saucer or rim, for the purpose of preventing any fluid spilled in filling the lamp, from igniting and burning the table or stand on which it is placed. Mechanical attachments suitable for these toy engines are made to go with them, such as sawmills, triphammers, etc., and will be found instructive and amusing for the young. For further particulars address, Wiester & Co., No. 17 New Montgomery street, in this city, or Kraft & Huffington, manufacturers, Brooklyn, N. Y.

**INFRINGEMENT OF PATENT.**—In the U. S. Circuit Court, R. R. and Joseph Craig have brought a suit in equity against Frank H. Fisher, for alleged violation of a patent. The patent consists of an improvement in a hose nozzle, which provides the discharge pipe or nozzle with radial plates, which are constructed so as to run lengthwise with the discharge pipe, and to extend sidewise from the outside of the orifice in the pipe towards the center of the same. The object of, and the result accomplished by, the invention is to cause the stream of water which passes through the pipe to leave the same in a straight line, and without any twist or rotary movement in it; the water does not scatter as it leaves the pipe, but is ejected in a straight, concentrated stream, and on this account is much more effective in hydraulic mining. This improvement it is claimed, was invented and patented by Chas. F. Macy and Seth

in California. These glass works from their accessible location, attract many visitors to see the process of glass blowing. A large assortment of goods is kept constantly on hand, and private moulds (lettered) for furnishing bottles to those who put up special articles or wish to have their names engraved upon them. The proprietors received a silver medal at the late Mechanics Institute Fair, for an exhibition of fine glass ware. They propose at no distant day enlarging their establishment and manufacturing a better variety of glass. The whole works are under the efficient management of Mr. C. Newman.

**TESTIMONIAL TO A MINING SUPERINTENDENT.**—A magnificent dinner set of ninety pieces, made of solid silver, was presented to Charles Forman, on Sunday, by Lafayette Maynard, President of the Meadow Valley Mining Company. The set was expressly manufactured by Geo. C. Shreve & Co., jewelers, of this city, for the Company in whose behalf the presentation was made. The pieces bear the following inscription: "Testimonial from Meadow Valley Mining Co., to Chas. Forman, late Superintendent; December, 1871."

Business having compelled Mr. Forman to resign his position as Superintendent, this testimonial has been made and a set of resolutions complimentary to him, passed by the Company.

#### The Scientific Press for 1872 Still Marching Onward!

Our careful system of compiling, judiciously condensing, and conveniently arranging into regular departments, has been heartily endorsed. It renders the paper worth more to readers, who can find handily that which interests them most. This plan will be continued in Volume XXIV.

The weekly issues of the Press will contain reliable

#### Information for Practical Miners,

Treating on the Opening of Mines; Mining of Ores; Milling of Ores; Smelting of Ores; Separation and Roasting of Ores; Amalgamation; Saving of Gold and all precious Metals; New Processes of Metallurgy; New Discoveries of Mines; Mining Engineering and Hydraulics.

#### For Inventors, Mechanics and Manufacturers.

All new and important developments in Scientific and Mechanical Progress; Patents and Inventions of the Pacific States; Progress of Home Industries; Hints for Local Manufacturers; Illustrations of New Machinery; Reports of Popular Scientific and Industrial Lectures.

#### Our Mining Summary

Gives the progress of mining work from week to week in the various counties and districts throughout the principal mining regions of the United States, arranged in alphabetical order. It is the most extensive record of mining operations published in the world. It affords the intelligent miner a rare opportunity to know and profit by the work and experience of his neighbors. Miners have few sources of practical information in their calling, and should embrace every reliable means for improvement. Mining Operators and Shareholders, at home and abroad, weekly examine our Summary with increased interest and profit.

#### For Self-Improvement,

Every issue of the Press abounds with articles of an elevating character, to stimulate the higher virtues and nature and progressive intellects of both men and women.

#### Our "Domestic Economy"

Embraces new and important facts which should be known in every cabin and household. Short and interesting—the articles under this heading are freely read and practiced with profit and improvement to the readers.

The Press is not strictly a "paper for professional, scientific men," but rather a

#### Liberal and Popular Scientific Journal,

Well calculated to make practically scientific men from our intelligent masses. This is our stronghold for accomplishing good. Plain, correct and pleasing language, easily comprehended by all, confined mostly to short articles, is our endeavor.

#### The New and Novel Developments

In the progress of this comparatively new section of the Union, but recently settled and now rapidly increasing with a population of the most intelligent and venturesome people, attracted from nearly every quarter and clime on the globe, enable us, with due enterprise, to display vigor and freshness in our columns not met with in similar journals elsewhere. The same circumstances also render such a paper more especially valuable to its readers in a new, and to a certain measure, untrodden field, where the best methods and processes of industry are not so well established or traditionally known as in older communities. Published experience often save costly experiments and disastrous results.

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Are oftentimes saved to the readers of this paper by a single hint or article of information in its columns; such instances have been repeatedly reported to the editors and proprietors during their long connection with the Press. On paper presents

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Our community is not so numerous or our field so thickly settled as the Eastern States and Europe, consequently we wish each friend of our enterprise to bear in mind the greater importance of his individual patronage, and also the value of

#### Speaking a Good Word

For the Scientific Press to those who are not, by personal acquaintance, familiar with its more than ordinary value and merits.

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#### DEWEY & CO.,

Publishers, Patent Agents, and Engravers, No. 338 Montgomery St., S. E. Corner California, S. F.

**NEW PUBLICATIONS.**—We have received advance sheets of R. W. Raymond's *Mineral Resources of the Pacific States and Territories*, for 1871, which we shall notice next week.



DOMESTIC ECONOMY.

Tools for the Women.

A year or two since the writer had a circular stairway erected in her front hall by a professional stair-builder. The tool chest of that workman was to her a curiosity shop. What delicate gouges were there, what polished chisels, what fine-toothed saws, what fancy planes! Whenever that artisan had a nice piece of fitting to do, out of the recesses of that chest came just the tool for the occasion.

Now, a housekeeper operates in cloth, and meat, and flour as materials, just as a carpenter works in walnut, and pine, and white wood. She needs the most appropriate tools, and she cannot do good work without them. Why are not women as well supplied with implements for performing their various tasks as are workers in stoue, and wood, and iron.

Before the American Institute Fair came to a close we went from end to end of that great building, with note-book and pencil, setting down ever invention that promises relief to women. Many of these are simple conveniences. For instance, there is a clothes-line holder that will fasten a line of any size, filled with clothes of any weight, in wind of any force, without knotting, tying, or untying. There is a sliding-gauge button-hole cutter instantly set to cut any size required. There are castors for sewing-machines which allow the machine to stand firmly when in use, yet permit it to move about when desired with the greatest ease. There is the automatic bobbin-winder for shuttle-machines, which will wind the bobbin with the uniformity of spool-cotton while one is sewing.

For invalids we noted two or three valuable conveniences. Foremost among these is the earth-closet. There is a folding-bed and settee combined, always ready for use. There is a stuffed chair with iron frame that can be put in a great variety of positions, with foot-rests and arms. A chair and step-ladder combined makes a valuable addition to our library and kitchen furniture. The mica lamp-chimney is a desideratum longed for by housekeepers; it does not break by expansion or contraction from heat or cold, and is easily cleaned. The combination brush and mop-holder by unscrewing a little clamp, may be converted into broom, mop, brush, scrubber and pope's-head.

There is a mode of fastening window-shades without springs, pulley-brackets, or racks. There is a baby-jumper mothers will find convenient for young children, and combination toy-blocks invaluable for those of larger size. There is a lightning chopper that makes play of preparing mince-meat and sausages. There is a reversible griddle that cannot fail to produce batter-cakes perfect in shape and defy the most awkward Bridget to make them ragged in turning. There are washers and wringers that reduce the labor of cleansing clothes one-half or two-thirds, according to the skill of the operator in using them. Let husbands who love their wives remember them with a gift of some one of these conveniences when Santa Claus makes his Christmas call down our stove-pipes and through our register.

MORE ABOUT APPLES FOR HUMAN FOOD. With us the value of the apple, as an article of food, is far underrated. Besides containing a large amount of sugar, mucilage and other nutritive matter, apples contain vegetable acids, aromatic qualities, etc., which act powerfully in the capacity of refrigerants, tonics and antiseptics; and when freely used at the season of mellow ripeness, they prevent debility, indigestion, and avert, without doubt, many of the "ills which flesh is heir to." The operators of Cornwall, England, consider ripe apples nearly as nourishing as bread, and far more so than potatoes. In the year of 1801—which was a year of much scarcity—apples, instead of being converted into cider, were sold to the poor, and the laborers asserted that they could "stand their work" on baked apples without meat; whereas a potato diet required either meat or some other substantial nutriment. The French and Germans use apples extensively, as do the inhabitants of all European nations. The laborers depend upon them as an article of food, and frequently make a dinner of sliced apples and bread. There is no fruit cooked in as many different ways in our country as apples; nor is there any fruit whose value, as an article of nutriment, is as great, and so little appreciated.—*Water-Cure Journal*.

Riddance of Cats Without Killing Them.

In cities and villages nearly everybody has trouble with cats. They catch more chickens than rats, rob bird's nests and kill the birds, scratch up the flower beds and run through the vines, besides crying murder all night to the great annoyance of the people. Many families have pet cats, and it is not clever to kill them although they are a great nuisance. A friend of ours has invented a way to get rid of these pests which may be of use for some of our readers to know. Take a large box, open on the bottom, and put slats on the top so that you can see the fun after the performance commences. Set a figure four (trigger—4) baited with meat under one end of the box at the place where the cats frequent. When you catch one, light a pack of fire crackers and put them through the slats into the box with the cat; and if you want to see some grand lofty tumbling look in. Raise the box and let the cat go before all the crackers have exploded. And if you want to keep the time that cat makes have your watch in your hand and look quick; about all that you can see is the very large tail they will have as they leave, flying. One application for each cat, or for each batch, if you care to keep them until you have several, will be sufficient for the season, and the neighbors will not be troubled with their cats running away from home for quite a while.—*New Albany Ledger*.

Corn Husk Baskets.

The materials are pasteboard, corn husks and silk or flannel of some high color. Cut out the sides six inches at the top, five at the bottom and one and a half wide; cut two more for the ends, four inches at the top, three inches at the bottom and one and a half wide; cut out the bottom five by three inches; cut a strip three-fourths of an inch wide and nine long for a handle. Then cut the lining of silk or some material not attractive to moths. The bottom and sides may be cut in one piece, care being taken to allow for seams at the ends and corners and also at the top to turn down under the husks on the outside. The end pieces must be cut separately and joined to the other. Sew all the pieces of pasteboard together, letting the handle have three quarters of an inch hold. Cut pieces of corn husk three-eighths of an inch wide and one and three quarters of an inch long; cross the ends; sew firmly to the pasteboard (beginning at the top) so as to make the points thus formed stand outward. When the whole is covered, fasten the lining by tacking here and there with silk of the same color. This makes a pretty note or card receiver for the center table.

MAKING STARCH.—The following is said to be a good receipt for making good, cheap and lustrous starch. It is prepared as follows: Into six pounds of cold water one pound of the best quality of wheat flour is stirred, when well mixed one ounce of aqua ammonia is added, while the mass is at the same time kept in motion. The flour swells considerably, and assumes a pale yellow color. Five pounds of cold water are then added, and the whole heated and boiled together for a quarter of an hour, by which means the surplus of ammonia is expelled. The paste thus obtained is semi-transparent, and fit for use. It gives a fine gloss not only to woven fabrics, but to paper, etc. It is very serviceable for purposes of the laundry, since it stiffens well, and quickly produces the desired gloss.

BAKED POTATOES.—Potatoes are more nutritious baked than they are cooked in any other manner; and they relish better with those who have not been accustomed to eat them without seasoning. Wash them as quickly as possible without burning in the least. As soon as they are done, press each potato in a cloth so as to crack the skin and allow the steam to escape. If this is omitted, the best potatoes will not be mealy. They should be brought immediately to the table, as they will soon become solid and lose their flavor.

CARE OF FRUIT.—The *Western Rural* argues the necessity of using great caution to prevent fruit intended for long keeping from being bruised. When placing winter fruit in bins, boxes etc., it should be carefully handled, and all bruised and inferior specimens picked out from the choice fruit. Winter fruits of every kind should be entirely free from moisture.

FOUR SEASONS—Mustard, salt, pepper and vinegar.

Mechanical Hints.

GOLDEN COLOR TO BRASS.—A mixture of muriatic acid and alum dissolved in water, imparts a golden color to brass articles that are steeped in it for a few minutes.

HARD CEMENT.—A foreign journal says that a French mason, in repairing the stone steps leading into a garden, used Portland cement mixed with finely divided filings and borings of cast and wrought iron, instead of sand; and that the mass has become so hard that it cannot be broken either with hammer or pickaxe.

DURABILITY OF DIFFERENT WOODS.—Experiments have lately been made by driving sticks, made of different woods, each 2 feet long and 1½ inch square, into the ground, only ½ inch projecting outward. It was found that in five years, all those made of oak, elm, ash, fir, soft mahogany, and nearly every variety of pine, were totally rotten. Larch, hard pine, and teak-wood were decayed on the outside only; while acacia, with the exception of being also slightly attacked on the exterior, was otherwise sound. Hard mahogany and Cedar of Lebanon were found in tolerably good condition. But only Virginia cedar was found as good as when put in the ground. This is of some importance to builders, showing what woods should be avoided, and what others used by preference in underground work.

ROPES OF HEMP, HIDE, WIRE, ETC.—When your rope has to run over large pulleys, use wire rope; but if the pulleys are small, wire rope cannot long stand continual bending over curves of a short radius, and gives out; in this case use rope of strips of rawhide, which during the last two years have appeared in the market; they are nearly as strong as wire rope, and about as lasting. Or you may use catgut; or, rather, gut rope, as the heavy kinds are obtained from other animals; the latter however, can only be obtained of certain definite lengths, while hemp, wire and rawhide rope can be had of any length. In regard to the price where good half-inch hemp rope costs about two cents per foot at retail, rawhide rope will cost 15 cents, wire rope, 20 cents, gut rope, 75 cents per foot or thereabouts.

Elements of Success.

"The struggles of a life to achieve some great victory, are like the efforts of the traveler to reach the summit of one of the mountains of Switzerland, in the face of a raging storm. To turn back toward the monotonous plain would defeat and disgrace, to remain where he is, without shelter is certain death; and to advance a single step seems to defy and mock at Heaven. Yet he is impelled to go forward; for, at the summit, he knows that the shepherd of St Bernard will welcome him and afford him shelter; but the rugged path becomes obscured, and the faithful guide bewildered and at length he is ready to lie down and die, when in the dim distance he sees through the blinding snow the faint light of the good shepherd, and with one desperate, almost hopeless effort, he reaches the threshold and is safe. During the calm night that succeeds, the northern streamers shoot in every direction across the sky, flecking the serene heavens with their spangled pennants of gold and orange and fleecy white; and when the sun of the morning floods the mountain peaks and spreads the gorgeous, limitless panorama, he feels, as he never felt before, that the mountain height of victory is infinitely more glorious for the trials and dangers of the rugged ascent."

FIFTEEN GREAT MISTAKES.—It is a great mistake to set up our standard of right and wrong, and judge people accordingly. It is a great mistake to measure the enjoyment of others by our own; to expect uniformity of opinion in this world; to look for judgment and experience in youth; to endeavor to mould all dispositions alike; not to yield in immaterial trifles; to look for perfection in our own actions; to worry ourselves and others with what cannot be remedied; not to alleviate all that needs alleviation, as far as lies in our power; not to make allowances for the infirmities of others; to consider everything impossible which we can not perform; to believe only what our finite minds can grasp; to expect to be able to understand everything.

CHILDHOOD is like a mirror, catching and reflecting images all around it. An impious or profane thought uttered by a parrot's lips may operate on a young heart like a careless spray of water thrown upon a polished steel, staining it with rust, which no after-scouring can efface.

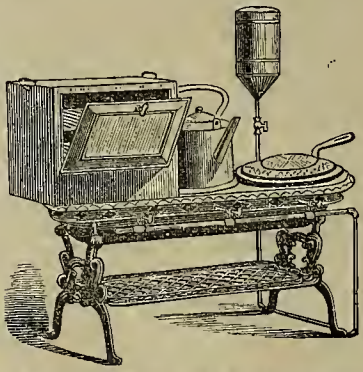
AUCTION SALE.

We will sell at public Auction, to the highest bidder for U. S. gold coin, on THURSDAY, December 28th, 1871 at W. A. Holcombe & Co.'s warehouse, the following described goods, to pay storage and advances, unless the charges are previously paid. Sale to commence at 12 M.

Description.	Name.	Charges.
1 chest.	No Mark.	\$14 50
1 chest.	No Mark.	17 00
5 cases wine.	N. N. G.	20 00
100 sacks.	McCoy Roberts.	22 00
14 pkgs furniture.	Smith & Smith.	45 45
1 bundle, 1 bedstead.	Francisco Garcia.	24 50
1 case.	A. H. Mow.	18 25
1 kg frames, 1 ash.	Martinetto.	25 00
1 barrel.	A. D.	25 50
2 pkgs ore.	G. Phelps.	24 50
1 case.	R. C. Boyan.	25 50
1 keg.	Geo. Landage.	27 00
1 case acid, 1 case.	S. D. Field.	31 50
1 marble slab.	Goodwin & Co.	27 25
4 sks quartz, 1 case.	C. Hanson.	31 35
1 velocipede.	Martinetto.	30 60
1 sign, 2 cot beds.	R. Weidman.	27 80
1 trunk.	Mrs. Tiley.	27 50
2 cases.	R. C. Boyan.	27 75
1 bale.	Miss Simpson.	32 00
15 coils wire.	A. S. Hilday.	56 75
1 sack.	Geo. W. Wells.	41 25
1 case.	Sam Lee.	27 75
1 case mdsc.	Douglas.	30 85
1 chest.	Maragaret Terry.	32 85
1 case.	W. M. Sealy.	30 50
1/2 cask, 1 barrel, 1 case.	F. S.	50 35
1 case.	C. S. Haley.	30 50
6 pumps, 1 pk handles, 4pg Iron.	G. M. Ganeh.	83 25
1 case.	C. Hanson.	52 50
1 chest, 2 pieces pipe.	E. McEee.	31 00
1 case.	W. G. Wedall.	37 50
1/2 cask.	Geo. Spect.	34 25
1 bpt.	Douglas & Co.	34 00
1 case.	S. Goldman.	36 25
1 box.	J. O. Hanna.	36 60
1 case.	R.	35 50
1 coil chain.	F. Moody.	33 50
10 1/2 barrels.	A. M.	37 00
Lot of Iron shafting, etc.	J. Austin.	69 00
1 case.	W. M. Sealy.	35 00
1 case.	C. & W.	29 50
5 cases, 1 trunk, 1 chest.	C. Henry.	27 00
1 case.	F. G. Warcup.	35 00
1 case.	W. Terry.	22 00
1 chest.	Wm. Foy.	12 00
1 chest.	C. W. Worden.	15 00
1 trunk, 1 case.	E. R. Campbell.	68 10
1 trunk, 1 bal Bedding.	Mrs. Lesley.	18 00
1 case.	No Mark.	12 00
2 pkgs bedstead, 1 bundle.	Mrs. Bowers.	15 00
1 show case.	J. A. Mahew.	38 00
1 barrel.	F. Olase.	31 10
1 case.	No Mark.	68 00

San Francisco, Nov. 25th, 1871. COBB, JONES & CO., Auctioneers. no25-JW.

THE IMPROVED AMERICAN VAPOR STOVE.



No Wood, Coal, Smoke, Ashes, Stovepipe nor Chimneys, and Perfectly Safe, Economy and Convenience combined.

WILLIAM FRIBEL, Manufacturer,

No. 69 and 71 Fourth street, S. F.

All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasoline and Patent Oils for Stoves and Lamps for sale. County Rights for sale. 10v23-3m



A Delightful Hiss.—There is the hiss of ridicule, the hiss of scorn, the hiss of snakes in the grass; but the most delightful hiss is that of

Tarrant's Effervescent Seltzer Aperient

In the sparkling goggle, giving assurance to the invalid that his thirst will be deliciously assuaged; that his stomach will be refreshed and purified; that if he is feverish, his body will be cooled by healthful evaporation; that if he is constipated, the difficulty will pass away without a pang, and that if the condition of his general health is impaired, it will be speedily restored. Of course, he will take care to procure none but the genuine.

SOLD BY ALL DRUGGISTS.



Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co." is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co. Dated San Francisco, Nov. 24, 1871. Office, 315 California street. A. J. SEVERANCE, CHAS. W. RANDALL, J. GUS. BURT. 22-v23-4f



## Business Cards.

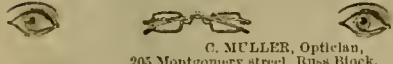
**J. ROSS BROWNE,**  
Office, No. 45 Montgomery Block,  
SAN FRANCISCO, CAL.

**E. J. FRASER, M. D.,**

**SURGEON,**

No. 102 Stockton Street, San Francisco, Cal.

Spectacles My Specialty.



C. MULLER, Optician,  
205 Montgomery street, Russ Block.

**JOHN ROACH, Optician,**  
Has removed from 522 Montgomery street to  
**510 Washington street,**  
East of Montgomery.  
Surveying Instruments made, repaired and adjusted  
22v17-3m.

**Farmers and Mechanics**  
**BANK OF SAVINGS,**  
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.  
**H. DUTTON, President.**  
GEO. M. CONDEE Cashier. 19v16-3m.

**N. P. LANGLAND,**  
Stair Builder, Wood Turner, and  
**SCROLL SAWYER.**

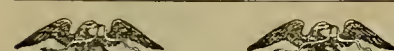
No. 485 Brannan Street.....SAN FRANCISCO.  
And No. 9 Q St., bet. First and Second,  
SACRAMENTO.

**W. BARTLING.** **HENRY KIMBALL.**  
**BARTLING & KIMBALL,**  
**BOOK BINDERS,**  
Paper Rulers and Blank Book Manufacturers.  
505 Clay street, (southwest cor. Sansome),  
SAN FRANCISCO.

**SAN FRANCISCO**  
**CORDAGE COMPANY.**

Manila Rope of all sizes. Also, Ballo Rope and Whale  
Line constantly on hand. Mining Ropes of any size  
and length manufactured to order.  
TUBBS & CO., Agents,  
611 and 613 Front street.

**JOSEPH GILLOTT'S**  
**STEEL PENS.**  
Sold by all Dealers throughout the World.



**J. F. PAGES,**  
**SEAL ENGRAVER,**  
**AND LETTER CUTTER.**  
Brass and Steel Stamps and Dies, 608 Sacramento street,  
San Francisco. Orders by express promptly attended to.

**INTERNATIONAL HOTEL,**  
San Francisco, Cal.

This Favorite House is located on Jackson street, a  
few doors west from Montgomery; offers the greatest in-  
ducements for Families. The International Coach will  
be at each Car Depot and Steamboat, plainly marked In-  
ternational Hotel, to convey passengers to the Hotel  
free, and to any part of the city at reasonable rates.  
F. E. WEYGANT & H. C. PARTRIDGE,  
Proprietors.

**L. SCHUMANN,**  
**PIONEER**  
**Meerschbaum Pipe Manufacturer,**

No. 341 KEARNY STREET,  
Between Bush and Pino streets, San Francisco.

The first and only Manufacture on the Pacific Coast.  
MEERSCHAUM MOUNTED WITH SILVER. Meerschbaum  
Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

**The Merchants' Exchange Bank**  
**OF SAN FRANCISCO.**

Capital, One Million Dollars.

LEVI STEVENS.....President.  
R. N. VAN BRUNT.....Cashier.

**BANKING HOUSE,**  
**6. 415 CALIFORNIA STREET.**  
25v20-4y

**STEINWAY & SONS'**  
**Patent Agraffe Pianos,**  
**GRAND, SQUARE AND UPRIGHT.**

**Pianos to Let.**

**A. HEYMAN,**  
I street, between Sixth and Seventh,  
Opposite old Capitol, SACRAMENTO.

## Eastern Advertisements.

**STOUT, MILLS & TEMPLE,**  
PROPRIETORS OF THE  
**GLOBE IRON WORKS,**  
DAYTON, OHIO.

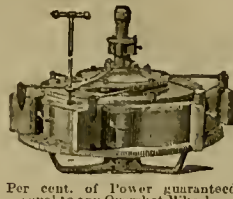
**Hydraulic**  
**ENGINEERS,**

Patentees

AND

**Manufacturers**

OF THE Per cent. of Power guaranteed  
equal to any Overshot Wheel.



**American Turbine Water Wheel,**

**MILL GEARING AND SHAFING**  
Of all Descriptions, and General Mill Furnishing.

Water Powers Estimated and Plans Furnished.

A. L. STOUT, W. M. MILLS, J. TEMPLE.

Send for Descriptive Circular. 22v23-3m-sa

**Peteler Portable Railroad Co.,**

TO CONTRACTORS, MINERS, ETC.

OFFICE, 42 BROADWAY, NEW YORK.

By this invention, one man, with one horse and five  
cars, does the work of ten men, ten horses and ten carts.

Highly Approved by all who Use Them.

CARS AND TRACKS FOR SALE OR TO LET

Samples at the office. Illustrated Circulars free.

State and County Rights for Sale.

23v22cww26t

**HOOVER'S**

**New and Superior Chromos.**

The Changed Cross, size 22 by 28.

The Faithful Crowned, size 22 by 28.

Virgin Mary and St. John, size 22 by 28.

The Holy Family, size 22 by 28.

The Beautiful Snow, size 16 by 22.

Delhi, Delaware County, N. Y., size 20 by 28.

**ALL REAL GEMS OF ART.**

Sold by Leading Dealers throughout the  
United States, and Wholesale by the Pub-  
lishers.

**J. HOOVER,**

804 Market Street,

PHILADELPHIA.

5v23-8m-cow

**RUSS PATENT**

**MONITOR MOLDING MACHINE,**

MADE BY

**R. BALL & CO., Worcester, Mass.,**

Manufacturers of the latest Improved WOOD-WORKING  
Machinery for Planing Mills, Car Shops, Agricultural  
Implements, Furniture, Sash, Blind, and Door Fac-  
tories, etc., etc. Send for Illustrated Catalogue and Price  
List.

**RICHARD BALL.** **E. P. HALSTEAD.**

ma4-cowly

**Situation as Chemist Wanted.**

The undersigned, having completed the working  
course of Chemistry in La Fayette College, Easton, Pa.,  
including Dry Assay of Ores and Blowpipe Analysis,  
desires a situation requiring a

**Practical Knowledge of Chemistry.**

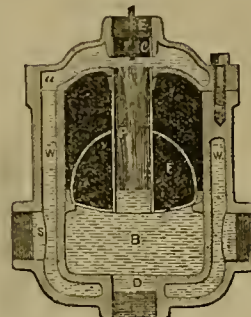
By permission refers to Dr. Traill Oreen, Professor of  
Chemistry in La Fayette College.

**B. CHAMBERS, JR.,**

Chambersburg, Pa.

20v23-3m

**CRAIG & BREVOORT'S**  
**Patent Condenser for Steam**  
**PUMPS, &c.**

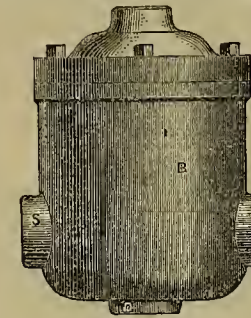


NO. 1.

The annexed engravings represent a Condenser in-  
tended to be attached to the ordinary steam pump,  
thoroughly bringing it within the class of low pressure, or  
more properly speaking, of condensing engines; the  
steam, when it has done its work in the cylinder, in-  
stead of being exhausted into the atmosphere, is con-  
ducted to the condenser, on its entry into which, it  
meets the water drawn by the pump, and is immedi-  
ately condensed.

The Cut No. 1 represents a vertical section of the  
Condenser, and No. 2 an elevation.  
The flange D is bolted to the suction orifice of the  
pump, and the flange S to the pipe leading to the well,  
or whatever source of supply the pump may have; W is  
a water jacket surrounding the main chamber of the  
condenser, B, and with which the suction pipe, S, com-  
municates, permitting a free circulation of water within  
the jacket and into the hollow cover or top through the  
series of openings, one of which is shown at A, and  
from thence into the body of Condenser, B, through  
pipe P, carried by float F; the pipe P also acts auto-  
matically as a valve to enlarge or contract the space  
through which the water enters it, by which means the  
possibility of the condenser being at any time flooded is  
avoided. The pipe F, it will be observed, also acts as a  
guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or  
lowered by means of screwed stem—shown coming  
through elbow in Cut No. 2—is for the purpose of in-  
creasing or decreasing the flow of water according to  
the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into  
cover at E; the exhaust steam is thus thrown directly  
into contact with the water entering the condenser on  
its way to water cylinder of pump through D. A  
vacuum being of course immediately formed, acts on  
the exhaust side of the steam piston, aiding it in its  
work. If at any time it is desirable to run the pump  
without the condenser, it is only necessary to turn the  
three-way cock, which is placed in the exhaust pipe,  
into such a position as to cause the steam cylinder to  
exhaust into the atmosphere; when this is done the  
pump is perfectly free from the condenser, and acts as  
if it were not attached. This condenser is especially  
useful for pumps running in mines, or any other po-  
sition where trouble is experienced in getting rid of the  
exhaust steam. Address  
H. L. BREVOORT,  
6v23-cowly 128 Broadway, New York City

**Phenixville Bridge Works**

OF PENNSYLVANIA.

**CLARKE, REEVES & CO.,**

**ENGINEERS AND BUILDERS.**

NEW BRIDGES, VIADUCTS, ROOFS, ETC.

Would respectfully call the attention of the officers of  
Railway Companies, and Engineers having charge of  
New Bridge Constructions, to their new

**Album of Designs,**

showing various styles of New Railroad Bridges, Via-  
ducts, etc., which they have either constructed or are  
prepared to construct. A copy will be mailed on ap-  
plication to our address, No. 410 Walnut Street, Phila-  
delphia. ap8-1y

**SELF-OILERS.**

**WATERS' SELF-OILERS.**

PATENTED October 21, 1862;  
July 6, 1867; July 23, 1869,  
22, 1868, and June 20, 1869.

Glass reservoir, with white  
metal coupling cast on.  
Substantial brass stem, with  
graduating plug—V slot on  
one side, as shown in magni-  
fied cut—in the top.

The best and cheapest  
OILER in the market; perfect  
lubrication on loose pulleys and all kinds of bearings.  
Any kind of Oil in any kind of weather. Price, \$4.50  
per dozen. Liberal discount to agents and to the trade.

**WATERS & CO.,**

no18-3m 164 Elm st, near Fourth, Cincinnati, Ohio.

First Premiums awarded by American Institute, N. Y.,  
**MICROSCOPES.**

Illustrated Price List sent free.

**Magic Lanterns and Stereopticons.**  
Catalogue, priced and illustrated, sent free.

**McALLISTER, Optician,** 49 Nassau street, New York  
3v23-1y

## Travelers' Guide.

**CENTRAL PACIFIC RAILROAD.**

**OVERLAND TRAINS.**

Express	Express	Dec. 6,	Express	Express
Daily, via	Daily, via	1871.	Daily, via	Daily, via
Oakland.	Vallejo.		Vallejo.	Oakland.
LEAVE	LEAVE	San Francisco	ARRIVE	ARRIVE
7:00 A.M.	8:30 A.M.	San Francisco	7:30 P.M.	8:30 P.M.
7:35 A.M.	9:00 A.M.	Oakland	8:00 P.M.	9:00 P.M.
7:50 A.M.	9:15 A.M.	San Jose	8:30 P.M.	9:30 P.M.
8:35 A.M.	9:50 A.M.	Stockton	9:00 P.M.	10:00 P.M.
11:27 A.M.	12:30 P.M.	Vallejo	9:30 P.M.	10:30 P.M.
	12:50 P.M.	Davis	10:00 P.M.	11:00 P.M.
	1:00 P.M.	Sacramento	10:30 P.M.	11:30 P.M.
ARRIVE	ARRIVE	Colfax	10:50 P.M.	11:50 P.M.
1:15 P.M.	2:00 P.M.	Reno	11:00 P.M.	12:00 P.M.
2:00 P.M.	2:30 P.M.	Winnemucca	11:30 P.M.	12:30 P.M.
2:45 A.M.	3:15 P.M.	Battle Mountain	12:00 P.M.	1:00 P.M.
3:15 A.M.	3:45 P.M.	Elko	12:30 P.M.	1:30 P.M.
3:45 A.M.	4:15 P.M.	Ogden	1:00 P.M.	2:00 P.M.
4:30 A.M.	5:00 P.M.	ARRIVE	2:30 P.M.	3:30 P.M.
5:20 A.M.	5:50 P.M.	ARRIVE	3:00 P.M.	4:00 P.M.

**San Francisco and San Jose.**

LEAVE	LEAVE	San Francisco	ARRIVE	ARRIVE
7:00 A.M.	7:30 A.M.	San Francisco	10:40 A.M.	11:40 A.M.
7:10 P.M.	7:40 P.M.	Niles	8:35 A.M.	9:35 A.M.
8:30 P.M.	9:00 P.M.	San Jose	7:00 A.M.	8:00 A.M.
ARRIVE	ARRIVE	ARRIVE	LEAVE	LEAVE

**San Francisco, Stockton and Modesto.**

LEAVE	LEAVE	San Francisco	ARRIVE	ARRIVE
7:00 P.M.	7:30 P.M.	San Francisco	12:30 P.M.	1:30 P.M.
8:10 P.M.	8:40 P.M.	Lathrop	4:45 P.M.	5:45 P.M.
9:20 P.M.	9:50 P.M.	Modesto	7:00 A.M.	8:00 A.M.
8:30 P.M.	9:00 P.M.	Stockton	4:22 P.M.	5:22 P.M.
ARRIVE	ARRIVE	ARRIVE	LEAVE	LEAVE

**Sacramento, Marysville and Tehama.**

LEAVE	LEAVE	Sacramento	ARRIVE	ARRIVE
7:45 A.M.	8:15 P.M.	Junction	12:15 P.M.	1:15 P.M.
8:00 P.M.	8:30 P.M.	Tehama	6:50 A.M.	7:50 A.M.
8:30 P.M.	9:00 P.M.	Rod Bluff	6:00 A.M.	7:00 A.M.
ARRIVE	ARRIVE	ARRIVE	LEAVE	LEAVE

**OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7:00,  
8:10, 9:20, 10:30, 11:20 a. m., 12:10, 1:50, 3:00, 4:00, 5:15, 6:30, 8:00  
a. m., 9:20, 10:30 p. m. (9:20, 11:20 and 3:00 to Oakland only).  
LEAVE BROCKTON, 7:40, 8:40, 9:40, 10:40 and 11:00 a. m., 1:30,  
2:40, 4:45, 6:10, 7:40 and 10:10 p. m.  
LEAVE OAKLAND, 5:40, 6:50, 8:00, 9:10, 10:00, and 11:10 a. m.,  
12:20, 1:40, 2:50, 3:55, 5:20, 7:50 and 10:20 p. m.**

**ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7:30, 9:00,  
and 11:15 a. m., 1:30, 4:00, 5:50 and 7:00 p. m. (7:30, 11:15  
and 5:30 to Fruitvale only).  
LEAVE HAYWARD, 4:30, 7:00 and 10:45 a. m., and 3:30 p. m.  
LEAVE FRUIT VALE, 7:25, 7:55, 9:00 and 11:20 a. m., 1:30,  
4:05 and 5:30 p. m.**

**CALIFORNIA PACIFIC RAILROAD.**

Leave	Leave	Arrive at	Arrive	Arrive
S. Fran.	Vallejo.	Calistoga.	Marysville.	Sacramento.
8:30 A.M.	10:30 A.M.	7:30 P.M.	4:00 P.M.	1:30 P.M.
9:40 P.M.	5:45 P.M.	8:15 P.M.	10:25 P.M.	8:40 P.M.
10:30 A.M.	10:35 A.M.	1:00 P.M.	5:15 P.M.	.....
Leave	Leave	Leave	Arrive	Arrive
Sacra'to.	Marysville.	Calistoga.	Vallejo.	S. Fran.
7:30 A.M.	6:00 A.M.	7:50 A.M.	10:15 A.M.	12:15 P.M.
2:30 P.M.	11:30 A.M.	2:15 P.M.	5:30 P.M.	7:30 P.M.
.....	11:45 A.M.	3:00 P.M.	5:20 P.M.	7:30 P.M.

**Sacramento, Davis and Marysville.**

Leave	Leave	Leave	Arrive	Arrive
S. Fran.	Sacra'to.	Davis.	Wood'd.	Marysville.
5:30 A.M.	11:45 A.M.	12:50 P.M.	1:23 P.M.	4:00 P.M.
8:30 P.M.	7:15 P.M.	8:00 P.M.	8:35 P.M.	10:35 P.M.
8:30 A.M.	2:30 P.M.	3:40 P.M.	3:30 P.M.	5:15 P.M.
Leave	Leave	Leave	Arrive	Arrive
Marysville.	Wood'd.	Davis.	Sacra'to.	S. Fran.
6:00 A.M.	7:35 A.M.	8:15 A.M.	9:00 A.M.	12:15 P.M.
11:30 A.M.	2:30 P.M.	3:10 P.M.	4:00 P.M.	7:30 P.M.
11:45 A.M.	12:30 P.M.	3:10 P.M.	1:30 P.M.	7:30 P.M.

**SAN FRANCISCO & N. PACIFIC R. R.**

Leave	Leave	San Francisco	Arrive	Arrive
2:00 P.M.	.....	Donahue	8:45 A.M.	.....
5:00 P.M.	.....	Petaluma	8:20 A.M.	.....
6:00 P.M.	.....	Santa Rosa	7:30 A.M.	.....
ARRIVE	6:45 P.M.	Healdsburg	5:45 A.M.	LEAVE

**CAL. P. R. R. CO.'S STEAMERS.**

Leave	Leave	San Francisco	Arrive	Arrive
4:00 P.M.	.....	Benicia	8:00 P.M.	6:00 P.M.
6:00 P.M.	.....	Stockton	2:00 P.M.	.....
2:00 A.M.	.....	Sacramento	12:00 M.	.....
ARRIVE	ARRIVE	ARRIVE	LEAVE	LEAVE

\*Sundays excepted. †Sundays only.

**T. H. GOODMAN,** **A. N. TOWNE,**  
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

**UNION PACIFIC RAILROAD.**

Running from Ogden, Utah, to Omaha, Nebraska—over  
one thousand miles, without change of cars.

**MAKING DIRECT CONNECTIONS**

AT OGDEN with the CENTRAL PACIFIC R. R. (from San  
Francisco); also with the Utah Central R. R. to Salt Lake  
City.

AT CHEYENNE with the DENVER PACIFIC R. R., for  
Denver City and the Mining Districts of Colorado.

AT OMAHA, for Chicago, Eastern and other cities, with  
the Chicago and Northwestern; Chicago, Rock Island and  
Pacific; Burlington and Missouri Rivers; St. Joseph and  
Council Bluffs Railroads; also, for St. Louis and all South-  
ern cities.

**EXPRESS TRAINS RUN DAILY.**—The U. P. R. R. use  
the Westinghouse patent air brake; Miller's patent truck  
platform and elastic car-coupler; and the most approved  
construction of cars for the comfort and safety of passen-  
gers.

**PULLMAN'S MOST MAGNIFICENT PALACE SLEEP-  
ING CARS** attached to express trains.

**T. L. KIMBALL,**  
General Passenger Agent, Omaha.

**LUBRICATING OIL,**



### The Legislature.

The Inaugural ball came off at Sacramento on the evening of the 19th, and is reported as a grand affair, but owing to the stormy weather the attendance was not as great as was expected.

On Tuesday an election for U. S. Senator to succeed Hon. Cornelius Cole was held. Hon. A. A. Sargent and W. T. Wallace, of Santa Clara, were nominated. On the first ballot 118 votes were cast, of which Sargent received 72 and Wallace 46, and the former was declared duly elected.

A message from the Governor of Nevada was received in the Senate containing a joint resolution passed by the Legislature of that State asking the State of California to cede the territory east of the Summit of the Sierras to Nevada.

A bill has been introduced by Mr. Days of Nevada, providing that all mining corporations, employing twelve men, and having a shaft sunk to the depth of 300 feet or more, shall have an outlet beyond the main shaft, through which the men may escape in case of accident. And, should companies neglect to supply this means of escape, they may be held liable to the injured parties for damages.

Mr. Spencer, of Santa Clara, introduced a bill in the Assembly providing that parents and guardians having control of children between the ages of eight and fourteen years shall require them to attend school at least twelve weeks during the school year, and six weeks consecutively, unless they shall be excused by the Board of Trustees, on account of inability or on account of attendance at some private school. Any violation of the Act is made punishable with a fine varying as the offense is repeated.

Mr. Betge, of San Francisco, introduced in the Senate, a bill creating the office of and defining the duties of State Forester, and giving the appointment of the office to the Governor. The Forester is to receive a salary of \$3,000 per annum, and is to be allowed for traveling expenses \$2,000 more. His duties are to gather, exchange and import the seeds of timber and forest trees, and distribute the same to County Forest Boards as he may see fit, and, in the discharge of these duties, he is authorized to incur expenses not exceeding \$5,000 per annum. The Board of Supervisors of the several counties are to constitute County Forest Boards of such counties, but without compensation. The State Forester is also, at some convenient place, to establish a nursery for planting seed, and rearing trees, and acclimatizing foreign and exotic trees—this expense to be borne by the State, though not to exceed \$4,000 per year, including rent of land, labor, etc. He is required to visit the different counties, and see that the work progresses as he directs. The trees in the nursery, when grown, are to be distributed to the Forest Board according to climate and requirements. The bill further requires that all agricultural and horticultural societies, receiving State aid, shall award a special premium for the largest and best plantation of forest or timber trees grown subsequent to the passage of this Act. It authorizes the Boards of Supervisors of the different counties to levy a special tax, to constitute the Forest Tree Fund, to be expended in the procuring of forest trees and the planting of the same along the public roads, as protection from the sun.

On the 1st of December the Land office at Olympia was besieged with applicants for land on the west side of Budd's Inlet, quite a number of claims being taken a few miles from town. Probably the terminus is now going to Mud Bay.

### A Reason for the High Price of Mining Books.

The published works relating to Mining and Metallurgy are very limited in the English language, for several reasons. Appreciative purchasers are comparatively few, requiring but small editions, therefore necessitating high prices. Authors who are best informed and most reliable too seldom are willing to devote the necessary attention to write works while their time is so peculiarly valuable for other pressing engagements. Hence a practical work like the one we issue, by the authorship of Mr. J. S. Phillips (a permanent resident of this coast), is of more than ordinary importance in the literary calendar of American publications. It is the largest volume yet published on Mining and kindred matters written or printed on the Pacific Coast. The five volumes on Mining and Metallurgical subjects issued from the office of the SCIENTIFIC PRESS since 1864, comprise nearly all the important and successful books of this class printed during that period in the United States. We mention these facts because, compared with common literary publications for general reading, which, if successful, reach sales of over 100,000 copies, the price of every book on Mining and Metallurgy seems high, while in reality it may be sold at too low a rate to secure fair profit to a careful author, even if an unusually large sale is met with for such high and valuable class of works.

DEWEY & CO.

### A Valuable Work.

The Explorers', Miners' and Metallurgists' Companion, by J. S. Phillips, M. E., recently published by DEWEY & CO., San Francisco, is a work which will commend itself to the public, not only for the completeness and clearness of the information it supplies, but for the practical assistance it affords to men not scientifically educated, to do their own assaying. It is a handsome volume of 640 pages with 81 engravings. The work is divided into five sections, treating severally of Geology and Mineralogy, Explorations, Assaying and Discriminations, Mining and Engineering, and Metallurgy. We know of no work on these subjects in the English language at once so comprehensive, practical and intelligible.—*Golden Era*, Dec. 17th.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to obtain a reputation for their prepared Cocos, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition distinguish the Maravilla Cocoa above all others. For homeopathic and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers', Brighton, Hongkong Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. fe25-ly

CROFT'S WESTERN WORLD is a large, spirited 8-page illustrated monthly (N. Y.) paper. Its object is to represent fairly the railroad and kindred interests of the West, and to present in a concise and convenient shape such information concerning Climate, Soil, Productions, Railroads, Lands, Farms, Local Industries, and Routes of Travel, as will prove most valuable to Tourists, Miners, and Settlers in the vast area "beyond the Mississippi River." We have received the first numbers, and must say it is worthy of great encouragement. An active and liberal minded publisher, we bespeak for Croft an immense success. Terms, \$1 a year. Address, 138 Nassau street, N. Y. del6-cow-bp

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Illustrated and described in the PACIFIC RURAL PRESS, November 25, 1871. Send for Circular. Machines and rights for the Pacific States for sale by

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This new roasting furnace is the CHEAPEST AND BEST yet offered to the public. By furnishing an ample supply of oxygen to the ore while roasting, thorough oxidation of the sulphurets is secured at a small cost.

It is Adapted to All Kinds of Ores.

A description and illustration of this Furnace was given in the SCIENTIFIC PRESS of November 25th.

For terms, circular, and further information, address the agent of the inventor,

MONROE THOMSON,  
At 444 California street, San Francisco, until further notice. 25v23-3m

THE

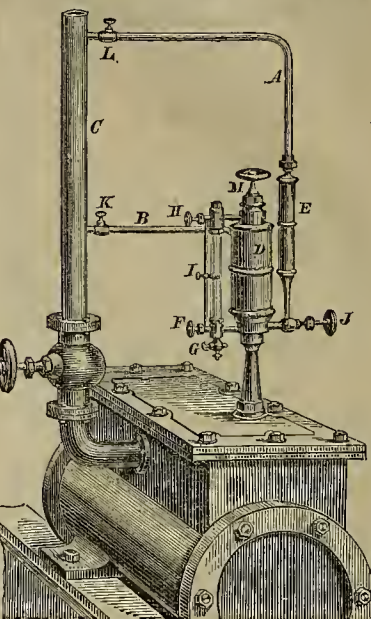
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12v23-3m J. W. TAYLOR, Agent.

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THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stops; H, P, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23ff

### J. S. PHILLIPS, M. E.,

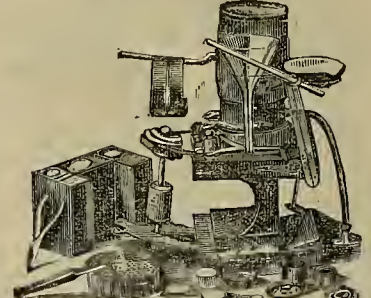
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Author of "The Explorers', Miners', and Metallurgists' Companion."

Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

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Price, with instructions, tools and fluxes, \$100.

### Practical Instructions in all kinds of Assaying, Discrimination and Analysis.

20-v23-ff

### Seaton Mining Company—Location of

works, Drytown Mining District, County of Amador, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 27th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Ashburrow, Wm.....	51	1	\$20 00
Gashwiler, J W.....	65	1	20 00
Grogan, A B (not issued)		10	200 00
Hastings, B F.....	67	10	200 00
Latham, M S.....	60	5	100 00
Latham, M S.....	61	5	100 00
Latham, M S.....	63	5	100 00
Latham, M S.....	65	4	80 00
McDonald, J W, Trustee for J W Gashwiler.....	71	5	100 00
Pringle, Geo C.....	70	5	100 00
Scott, Ed, Trustee.....	69	5	100 00
Tevis, Lloyd.....	48	5	100 00

And in accordance with law and an order of the Board of Trustees, made on the 27th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 438 California street, San Francisco, California, on the 30th day of December, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOEL P. LIGHTNER, Secretary.

Office, No. 438 California street, San Francisco, California. 23v23-4w

### CUNDURANGO.

BLISS, KEENE & CO'S Fluid Extract, the wonderful remedy for Cancer, Syphilis, Scrofula, Ulcers, Pulmonary Complaints, Salt Rheum, and all Chronic Blood Diseases, is prepared from the Genuine Cundurango Bark from Loja, Ecuador, secured by the assistance of the authorities of that country. It is the most effective, prompt and certain alterative and blood purifier known. Sold by all Druggists, in pint bottles, having on them our name, trade mark and directions. Send for a circular. Office and Laboratory, No. 60 Cedar street, N. Y. 25v23-3m



Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine County, Nevada.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of December, 1871, an assessment of (No. 1) of 50 cents per share was levied upon the capital stock of said company payable in United States gold coin, on the 13th day of December, 1871, to Henry G. Langley, 612 Clay street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 13th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. HENRY G. LANGLEY, Secretary.  
Office, No. 612 Clay street, San Francisco, Cal. d616

Altona Gravel Mining Company—Location

of works, Grass Valley, Nevada County, Cal.  
NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 31st day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:  
Names. No. Certificate. No. Shares. Amount.  
Beatty, Frank G..... 17 200 \$0.00  
Beatty, Frank O..... 271 18 4.50  
Cohn, L. B..... 229 200 50.00  
Cohn, L. B..... 264 18 4.50  
Dibble & Byrne..... 118 100 25.00  
Dibble & Byrne..... 119 100 25.00  
Dibble & Byrne..... 120 50 12.50  
Dibble & Byrne..... 272 23 5.75  
Dodge, D. F..... 270 36 9.00  
Orant, Emanuel..... 266 7 1.75  
Hooper, Aaron..... 227 100 25.00  
Hooper, Aaron..... 273 9 2.25  
Jeffrey, E. B..... 209 25 6.25  
Murbar, Martin..... 222 200 50.00  
Murbar, Martin..... 274 18 4.50  
Plukham, S..... 145 100 25.00  
Pinkham, S..... 258 9 2.25  
And in accordance with law, and an order of the Board of Trustees, made on the 31st day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at No. 327 Montgomery street, San Francisco, Cal., on the 26th day of December, 1871, at the hour of 3 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.  
DAVID WILDER, Secretary.  
Office, No. 28 Merchants' Exchange, California street, San Francisco, Cal. d613w

Eagle Quicksilver Mining Company—Location

of works, Santa Barbara County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of October, 1871, an assessment of Forty (40) dollars per share was levied upon each and every share of the mines of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any share upon which said assessment shall remain unpaid on Thursday, January 10th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, the 6th day of January, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
W. M. H. WATSON, Secretary.  
Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. nov14d

Nevada Consolidated Borax Company---

Location of works, Columbus and Fish Lake Valleys, Esmeralda county, Nevada.  
Notice is hereby given, that at a meeting of the Trustees of the above named company, held November 29th, 1871, an assessment of five (5) cents per share was levied on the capital stock of said company, payable on and after the 30th day of November, 1871, in U. S. gold coin, to the Secretary, at the office of the company, No. 420 Montgomery street, San Francisco. Any stock upon which said assessment shall remain unpaid on Wednesday, January 10th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold at public auction on Monday, January 21st, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale.  
J. L. SANFORD, Secretary.  
Office—Room 1, 3d story, No. 420 Montgomery street, San Francisco, California.  
San Francisco, December 6th, 1871. d9-5t.

Pocahontas Gold Mining Company—Location

of works, Mud Springs, El Dorado County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of November, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 16, Hayward's Building, No. 49 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
D. A. JENNINGS, Secretary.  
Office, Room No. 26, Hayward's Building, 49 California street, San Francisco, Cal. d25w

Quail Hill Mining and Water Company—Location

of works, Salt Springs Valley, Calaveras County, Cal.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 19th day of December, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 13th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
T. F. FROST, Secretary.  
Office, 409 California street, San Francisco, Cal. d23-w

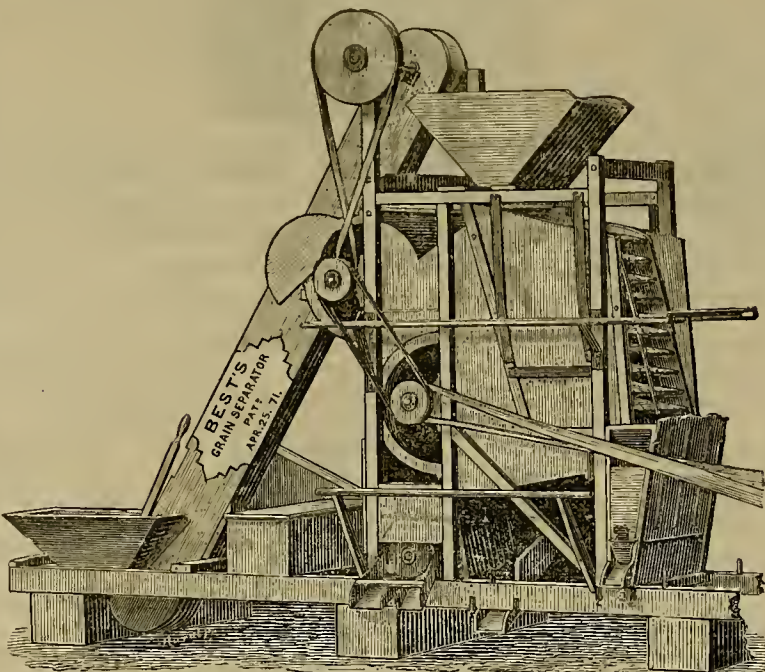
Tecumseh Gold, Silver and Copper Mining Company—Location

of works, Gopher District, Calaveras County, California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 5th day of December, 1871, an assessment of Three (\$3) dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 9th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
F. J. HERRMANN, Secretary.  
Office 516 Kearny street d9td.

Best & Brown's Unrivalled Seed Separator.

PATENTED APRIL 25, 1871.

We wish to call the attention of Farmers, Millers and Threshers to the great usefulness of this Machine.



It makes a perfect separation of Barley, Oats, Abess, Pink Seed, Kale and Mustard Seeds, and other impurities from Wheat, rendering the finest grain (either Wheat, Oats or Barley) perfectly clean and fit for seed at one operation—common hand mills are nowhere.

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We wish it distinctly understood (and we mean all we say) that we clean grain that is too foul for the flouring mill separators, at one operation.  
Light Horse Powers, adapted to driving the Separator, furnished to order.  
State and County Rights for sale on reasonable terms.

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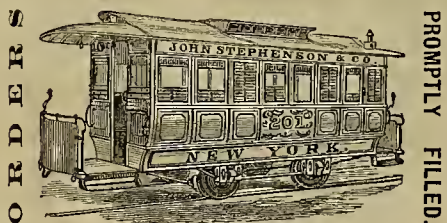
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J. BERTON, President.

E. P. HUTCHINS, Secretary.

N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.

W. H. GORRILL, Pres't.

F. MALOON, Sec'y.

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WILLARD P. WARD, Manager,

P. O. Box 4404, 37 Park Row, New York, 25v23-tf

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.  
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of December, 1871, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 17th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 7th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.  
R. H. CORNELL, Secretary.  
Office, 220 Clay street, San Francisco, Cal. d614w

Notice—The following described Certificates of Stock of the Permanent Milling and Mining

Company were sold December 8, 1871, for delinquent assessment, and will not be transferred on the books of the Company—viz:  
Certificate No. 20, Caughlin, Jerry.....1750 shares  
Certificate No. 18, Emart, Michael.....1750 shares  
Certificate No. 19, Godfrey, Richard.....2625 shares  
Certificate No. 16, Hutchinson, Wm. T.....583 1/2 shares  
Certificate No. 17, McClure, E. C.....583 1/2 shares  
Certificate No. 22, Perkins, J. E., Trustee.....1500 shares  
Certificate No. 13, Willson, James.....1750 shares  
Certificate No. 14, Willson, James.....875 shares  
J. W. CLARK, Secretary.  
San Francisco, Dec. 11, 1871. d616-2t

Starlight Gold and Silver Mining Company. Location of Works: Humboldt County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 1st day of November, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bee, A. W.....	47	5	\$ 1 25
Bee, B. B.....	358	50	12 50
Bee, B. B.....	360	25	6 25
Bowman, James.....	5	25	6 25
Bowman, James.....	7	25	6 25
Bowman, James.....	8	25	6 25
Bowman, James.....	9	25	6 25
Bowman, James.....	10	25	6 25
Bowman, James.....	11	25	6 25
Bowman, James.....	12	25	6 25
Bremer, J. J.....	137	30	7 50
Bryan, J.....	138	5	1 25
Cobb, W.....	308	25	6 25
Cobb, W.....	309	25	6 25
Cobb, W.....	310	25	6 25
Cobb, W.....	311	25	6 25
Coffee, John T.....	239	25	6 25
Coffee, John T.....	426	15	3 75
Edolston, John B.....	137	5	1 25
Edouart, A.....	138	5	1 25
Edouart, A.....	139	5	1 25
Edouart, A.....	140	5	1 25
Edouart, A.....	141	5	1 25
Edouart, A.....	142	10	2 50
Foy & Chase.....	391	10	2 50
Furbush, M.....	435	170	42 50
Furbush, M.....	437	25	6 25
Furbush, M.....	438	5	1 25
Furbush, M.....	439	60	15 00
Furbush, M.....	463	10	2 50
Furbush, M.....	468	50	12 50
Gallusde, A.....	388	10	2 50
Goldstone, John B.....	172	5	1 25
Goldstone, John B.....	173	5	1 25
Grant, Charles W.....	487	50	12 50
Green, W. A.....	21	25	6 25
Greene, W. A.....	22	25	6 25
Green, W. A.....	81	25	6 25
Green, W. A.....	82	25	6 25
Green, W. A.....	83	25	6 25
Green, W. A.....	85	50	12 50
Green, W. A.....	336	20	5 00
Green, W. A.....	347	10	2 50
Green, W. A.....	348	20	5 00
Green, W. A.....	349	20	5 00
Green, W. A.....	340	20	5 00
Green, W. A.....	341	20	5 00
Green, W. A.....	424	70	17 50
Higgin, S.....	426	20	5 00
Kerr, Wm.....	427	25	6 25
King, C. J.....	473	10	2 50
Klameyer, H.....	216	6	1 50
Klumpe, J. G.....	155	25	6 25
Klumpe, J. G.....	156	25	6 25
Klumpe, J. G.....	157	25	6 25
Klumpe, J. G.....	158	25	6 25
Lille, John.....	428	15	3 75
Lyon, S. B.....	171	6	1 25
Mason, A. T.....	33	25	6 25
Mason, A. T.....	34	25	6 25
Mason, A. T.....	35	25	6 25
Mason, A. T.....	36	25	6 25
Mason, J. W.....	29	25	6 25
Mason, J. W.....	30	25	6 25
Mason, J. W.....	31	25	6 25
Mason, J. W.....	32	25	6 25
McLoughlin, John.....	441	40	10 00
Micklo, Eitting.....	389	10	2 50
Montgomery, E. L. Trust, not issued	1500	375	90
Noakes, C. C.....	44	10	2 50
Norcross, Mrs. D.....	478	10	2 50
Osgood, J. K.....	73	25	6 25
Osgood, J. K.....	74	25	6 25
Osgood, J. K.....	75	25	6 25
Osgood, J. K.....	76	25	6 25
Paden, Patrick.....	170	10	2 50
Phillips, Mrs. Jane.....	417	10	2 50
Riley, H. K.....	405	25	6 25
Robertson, W. D.....	314	10	2 50
Robertson, W. D.....	315	10	2 50
Robertson, W. D.....	316	5	1 25
Robertson, W. D.....	319	5	1 25
Robinson, John E.....	481	10	2 50
Robinson, John E.....	482	10	2 50
Roxby, Robert.....	37	25	6 25
Roxby, Robert.....	38	25	6 25
Roxby, Robert.....	39	25	6 25
Roxby, Robert.....	40	25	6 25
Smithson, T. B.....	411	15	3 75
Snibson, T. B.....	423	10	2 50
Spear, Mrs. E. B., not issued	1500	2	0
Stringer, W. J.....	469	25	6 25
Swain, J. H.....	462	50	12 50
Thomson, Samuel.....	121	10	2 50
Townsend E. S.....	477	56	14 00
Van Vleck, D.....	194	10	2 50
White, Ellen.....	456	10	2 50
Williams, J. H., Trust, not issued	1505	375	25
Winn, John M.....	347	50	12 50
Winn, John M.....	348	25	6 25
Winn, John M.....	349	25	6 25
Winn, John M.....	446	100	25 00
Winn, John M.....	449	40	10 00
Winn, John M.....	453	50	12 50
Wolters, J. J.....	215	6	1 50
Wolters, J. J.....	229	13	3 25
Wood, Joseph.....	432	15	3 75
Zekind, A. J.....	430	10	2 50
Zekind, A. J.....	436	10	2 50



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F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

BOILERS

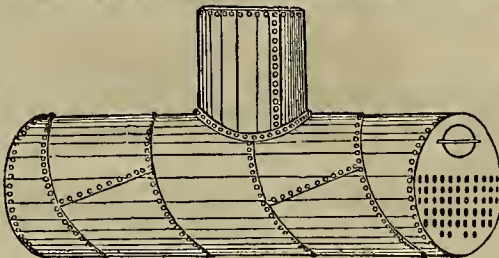
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Manufacturers of the

CELEBRATED

SPIRAL BOILER.



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Sheet Iron Work

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All kinds of

JOBGING

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SEND FOR CIRCULAR AND PHOTOGRAPHS.

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INCORPORATED..... APRIL 30, 1868.  
CAPITAL..... \$1,000,000.

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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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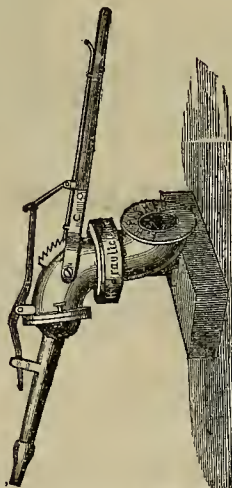
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FOR WATER AND GAS.

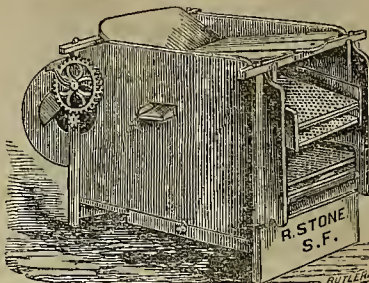
PIPE of all sizes, of a very superior quality, is now being made at the

Pacific Iron Works,

In this city, under the Patents of Farrar & Whiting.  
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Patent Steam Stamp Mill

IS THE BEST AND

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Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

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IN EVERY PARTICULAR

This Mill is Greatly Superior to the

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RECOLLECT

This Mill is Fully Guaranteed

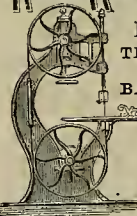
to do and be all we claim for it.

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AND KNIVES COMPLETE,

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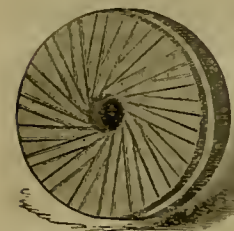
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French Burr Mill  
Stones, Portable  
Mills of all sizes,  
Salt, Paints, Drugs, &c. Mills specially adapted for  
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Salt, Paints, Drugs, &c. Mills specially adapted for  
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THE

## Risdon Iron and Locomotive Works

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PIPE, of any size and for any pressure, and contract to  
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All kinds of Machinery made and repaired.

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SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE  
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few days of the time of its manufacture, and is in every  
way superior to any other Powder in Market.

We have been awarded successively

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We also call attention to our

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Which combines all the force of other strong explosive  
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A circular containing a full description of this Pow-  
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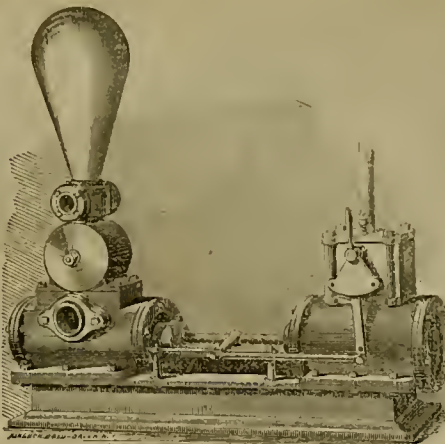
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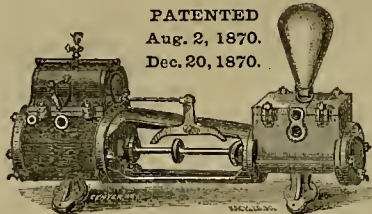


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Combines Simplicity and Durability to a Remarkable Degree.

Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—  
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safety, and simplicity of construction; requires but  
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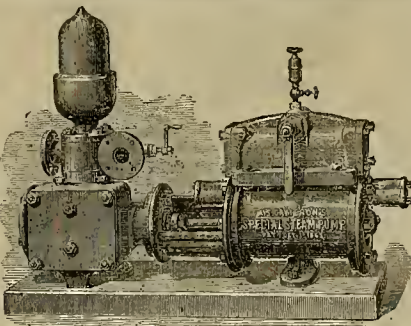
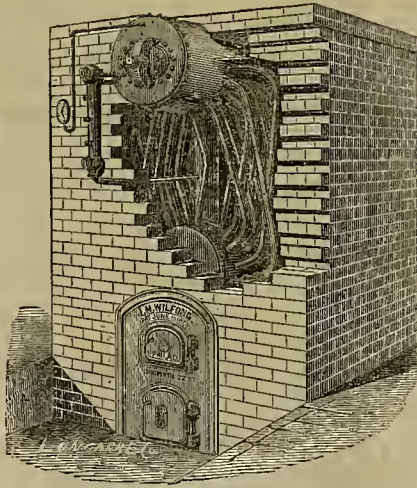
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Surface Condensers.

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MACHINIST,

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Stamps and Punches made. Also, all kinds of  
Small Gears Cut.

Repairing done on very Reasonable Terms and in the  
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ADVANCES MADE

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make working tests by any process, assay ores and pro-  
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W. L. STRONG

C. W. STRONG &amp; CO.,

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Tests made with care. Also, Assays of Gold, Silver,  
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22v18

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These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they  
have no equal. No effort has been, or will be spared,  
to have them constructed in the most perfect manner,  
and of the great number now in operation, not one has  
ever required repairs. The constant and increasing de-  
mand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly  
into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces  
the pulp to the center, where it is drawn down through  
the aperture and between the grinding surfaces.—  
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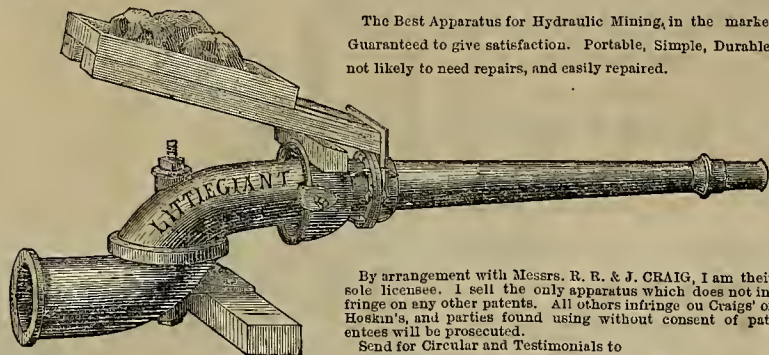
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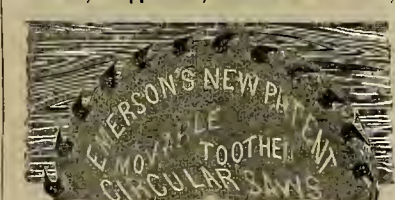
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## Section I.—GEOLOGY AND MINERALOGY.

CHAPTER I.—Formation of the Earth, from its initial chaotic state to the time of the partial elevation and solidification of its primitive granitic mountains.

2.—Formation of the first clay slates, greenstones, quartzites, hornblendes, and various fine-grained felspathic mixtures, from primitive rock elements.

3.—The rock formations of the Paleozoic, Mesozoic, and Cenozoic times; wherein the footprints and fossiliferous remains of animated nature unfold evidence of their presence and progressive continuance, from first mere existence to perfection.

4.—Theory of Earthquakes; the mighty powers that have fractured some of the mineral sections of the earth's crust into separate belts of rock, within the opening walls of which the minerals have been since deposited.

5.—Formation of Veins; of the "True fissure veins" in the Azoic and metamorphosed Paleozoic rocks. Of converging and wedge veins in the convex upper sections of upheaved bed-rock. Of veins that are more or less conformable to the general cleavage of tilted stratum, in the seams of which the matrices, minerals and metals have been deposited. Of veins that intervene and separate two distinctly different strata, as granite and slate, slate and limestone etc. Of gash veins. Of cross courses. Of slides. Of dikes. Of carbonaceous, bonanza, pockets, and floors. Of irregular sublimations, alluvial distributions, and sedimentary deposits.

6.—The supposed actions and reactions that have been and are continually taking place in mineral veins, pockets and deposits. How minerals were formed. How gold, platinum, and other similar metals were formed.

7.—The peculiar characteristics of "True fissure veins" and their constituent combinations. Positions, directions, and dips. General comportment when traversing different strata, when forming intersections and junctions with each other, or with cross courses, dikes and slides. Counteractions and general influence of cross courses, slides, and dikes. Summary of the effects produced by collective causes.

8.—The more generally recognized premonitory indications in the shallow portions of veins, for probable increase of mineral in depth.

## Section II.—EXPLORATION.

CHAPTER I.—Prospecting.

1.—How to explore.

2.—Where to explore.

3.—The peculiar kinds of the primitive and secondary rocks, that concern the miner, as being most congenial for rich veins; and what formations should be avoided.

4.—The prospector's and locator's preliminary exposition of the general features of a vein, so as to ascertain its approximate value, previous to location and development by the miner.

## Section III.—ASSAYING AND DISCRIMINATIONS.

CHAPTER I.—Systematic preparation of the sample, to obtain average equality, for discrimination or assay.

2.—Description and general advantages of the "explorer's, miner's, miller's, and smelter's friend," the portable, "wee pot" assaying machine.

3.—New methods for the examination and assay of ores, by water-washed concentrations, sometimes perfected by acid solutions, or mercury, and completed, when necessary, by roasting, and fluxed fusion, with crucible, scorifier and machine.

4.—The methods for discrimination, by blow-pipe assaying machine, of such of the metals, metallic minerals, and earths, with their combinations; that should be known by the explorer, miner, miller, smelter, assayer, and metallurgist.

5.—Discrimination of the profitably useful minerals, by a new method, for practical men.

6.—An alphabetically arranged record of the effects produced by water and fire, sometimes assisted by water and chemical reagents on the minerals and such of their compounds as will be practically useful and profitable to the explorer, miner, and metallurgist.

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8.—Assaying of Lead.

9.—Assaying of Antimony.

10.—Assaying of Copper, by acids and by fire.

11.—Assaying of Tin, by water, acids, and fire.

12.—Assaying of Mercury.

13.—Assaying of Iron.

14.—Assaying of Manganese and Zinc.

15.—Assaying of Coals.

## Section IV.—MINING AND ENGINEERING.

CHAPTER I.—Education of a Mining Engineer.

2.—Systematic and more extensive excavations, for the examination of the supposed rich vein.

3.—Mechanical Engineering, above and below the surface.

4.—The Cornish hydraulic engine; steam-pumping engine; pumps, etc.; hand and steam capstan, hoisting machines, tram-roads, and man engines.

5.—Deep mining, as facilitated by such machines.

6.—The Cornish crushing, stamping, fluming, jigging, buddling, framing, and roasting machines.

7.—Dry and wet concentration of ores, by hand, water, and acids; and by calcination.

8.—Preparing and sampling the ores for the market, etc.

9.—Contracts, setting, paying, and account days.

10.—The most important and more frequently recurring errors in mining, which may be more easily avoided than committed.

## Section V.—METALLURGY.

CHAPTER I.—Roasting.—Roasting of peculiar ores, to reduce their weight for cheaper conveyance to the market.

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SAN FRANCISCO, SATURDAY, DECEMBER 30, 1871.

VOLUME XXIII.  
Number 26.

## IMPORTANT MINING DECISION—MINING CLAIMS ON SCHOOL SECTIONS.

The Register and Receiver of the United Land Office, at Sacramento, has recently made an important decision in the matter of the attempt, on the part of certain parties, to obtain by means of a purchase from the State, for four hundred dollars, the legal title to the Keystone, Original Amador, and Bunker Hill mines, worth in market probably nearly two million dollars.

These mines have been occupied and worked for nearly twenty years, and the Keystone is deemed by many experts the best gold mine on the coast. Upon survey of the section lines of that township by the United States in 1870, these mines were found to be located on east half of Section 36, in township 7 north, Range 10 east, Mount Diablo meridian.

As section 16 and 36 in every township (with certain exceptions) were by act of Congress approved March 3, 1853, granted to the State for school purposes, some party seems to have jumped to the conclusion that, by purchasing from the State of California the half section on which these mines are, he could get the legal title to the mines.

The facts, as detailed in the opinion of the officers, show a gross fraud in the survey of the section lines of the township in not noting the location of Amador City, a town of 500 people, entirely built up by these mines, and in incorrectly locating it upon the plat of the Keystone Mine. The photographic views taken from the lines of the section, showing the town and the mines in full view from these lines, are stubborn witnesses of the fraud.

Nor does the State Land Office seem to have steered entirely clear of apparent complicity in this attempt to take from the mine owners their property. In the ordinary course of business, under the State statute providing for the sale of State School lands, an application of their purchase cannot be approved until the certificate of the Register of the proper U. S. Land Office shows that the township has been surveyed for three months, and that no conflicting claim is on file in the United States Land office. In this case the sale was made upon the certificate of the Register of the United States Land office that the plat had been on file three days, and that no conflicting claim had been filed. Mr. Casey, the purchaser, was allowed, upon this certificate, to purchase the State's title for \$1.25 per acre; or, \$400 for the half section embracing these mines.

Within the three months after the plat was filed, the mining companies filed their several claims, and one pre-empting declaratory statement was filed, taking in a portion of this half section. The County Judge, also, within that time filed his application to enter the town site in trust for the inhabitants of Amador city.

But the Register and Receiver have taken a different view of the matter, and one which seems much more consonant with law, as well as with justice. They hold—

1. That the grant of sections 16 and 36 to the State possesses no title until the United States survey of the sectional lines of the township is made; that until the section lines are run and platted, there is no section 16 or 36 to pass by the grant.

2. That until such survey, the United States is at liberty to make any other disposition of the land, which becomes section 16 or 36 upon survey; the State in such case, to take other land in lieu.

That the Act of Congress authorizing miners to locate claims on the public land

and procure patents for the same, approved July 26th, 1868, legalized the occupation of these mines by these in possession, the township not being yet surveyed by the United States, and that the title thus vested in them to the exclusion of any right of the State under the school land grant; so that the miners were entitled to receive patents upon making the proper application, proof and payment.

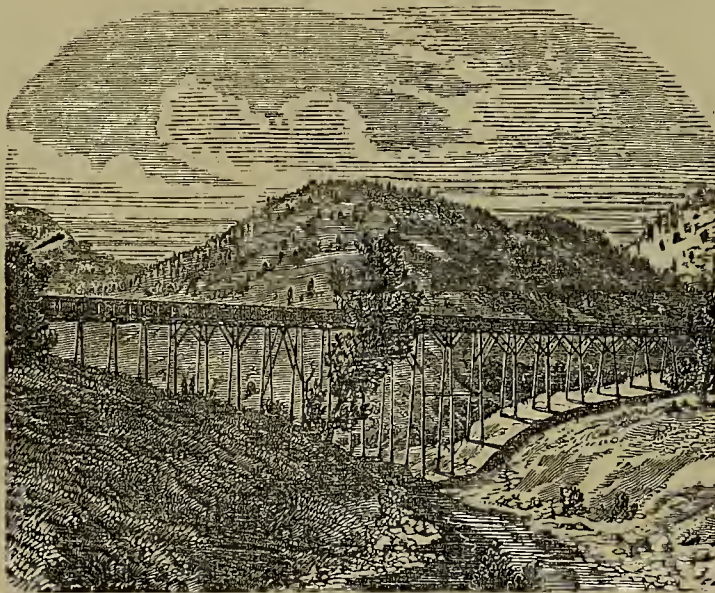
That even if this were not so, still the State would have no title to this half section under the school land grant, inasmuch as there was a town thereon, not only before survey, but even before the school land grant was enacted; and also a cultivated field long before survey.

The land officers further hold that the settlement of the inhabitants of Amador City upon this land was lawful under Section 8 of the Act of March 3, 1853, which gives to the inhabitants of town sites on

of the mountain streams occupying and rushing down cañons, whose sides are almost perpendicular walls of rock, and often three thousand feet or more in height, and along which the pedestrian can only make his way for a hundred yards together, by taking to the head of the stream.

It is from such cañons, that the water is mostly obtained for the supply of our mining canals and ditches; and it is not unusual that from three to ten miles of wooden flume is required at the upper end, before the water can be brought out of the cañon sufficiently high to oertop or command the ridges and foothills of the lower country, in which the mines and placers are principally found.

To lift as it were, the waters from these



FLUMING OVER A GORGE.

mineral lands "the right of occupation and cultivation" of said land "until such time as Congress shall dispose of the same."

### Fluming.

Only those who are familiar with the physical formation of the mountain and gold region of California, have anything like an adequate idea of the vast amount of labor expended, in the construction of our artificial water-courses that supply the mining canals and ditches with water from the mountain streams.

To hear of the construction of a hundred miles of mining ditch, conveys but a feeble conception of the magnitude of the enterprise, or the difficulties to be overcome. The mountain country from which the supply of water is obtained, does not consist of slope upon slope, or of successive tables of comparatively level land, and rising one above another: but from the foot hills, the mountains rise to the height of from seven to nine thousand feet, in one uninterrupted succession of immense ridges, lying in every conceivable direction and position, with intervening gorges or cañons of corresponding depth; and by this we mean, of very great depth; many

deep cañons, or rather to convey them at a fall of from five to twenty feet to the mile, out of them, often requires many miles of flume constructed entirely of wood, because the steep sides have not, in many places, a single inch of earth in which to excavate a ditch; and even the rocky sides often so high and steep as to require the flume to be constructed upon trestle work, a hundred or more feet in height; and even in some instances actually suspended by iron work, upon the smooth face of almost overhanging rock and precipices; the workmen are let down and suspended by ropes from above, while prosecuting their arduous labors.

Then again, the flume is made to span a vast gorge sometimes, as shown in our illustration, which is from *Hutchings' Magazine*, and in places supported by timber work from beneath; at others, by suspension from the sides; and in its tortuous course, running up and crossing adjacent gorges, perhaps to take in the waters of some small tributary, and then again heading for and coursing along the great main cañon, leaping as it were, from point to point of jutting crag and cliff, till at last it reaches the more earthy side or summit of

the ridge, there to be at once used for gold washing, or milling purposes, or conveyed by ditches in countless ramifications to the lower mining world; and these enterprises constitute the great fulcrum of our mining prosperity.

### Canal Propulsion.

Our inventors seem to be moving quite briskly in the matter of securing a better means of propelling canal boats, judging from the number of recent patents on this subject. It is only necessary to create a demand and the versatile genius of our Yankee inventor will soon supply all that is required. We had hoped that the honor of furnishing the required improvements and receiving therefor the prize offered by the State of New York would be given to some of our Pacific Coast inventors, but thus far we have heard of no particular attempt on the part of inventors on this Coast to compete for the prize. We are the more astonished at this fact from knowing that several new and quite promising inventions for propelling vessels have been patented and tested at considerable expense with results which to our minds evidenced their availability for propelling canal boats.

One of these devices which gave good experimental results in propelling a vessel in our bay, it seems to us would be particularly applicable for canal boats. We refer to the propeller of Thomas Finlayson now of Folsom, which was tested by Mr. A. C. Loud of this city, over a year ago, and although the results were not such as to effect its adoption upon seagoing vessels yet for canal purposes it appears to fulfil to a remarkable degree all the requirements of the Act of the State of New York which were to be the test of the successful competition for the prize.

The device consists of one or more wheels of the Turbine order, in appearance, but really a reversion of the Turbine water wheel, fixed on a shaft and enclosed in an air tight case in the bottom of the vessel. This case has two openings below the boat, through one of which the water rushes inside the case and is forced out through the other by the centrifugal force of the revolving wheel, causing a vacuum which draws in the water. By this means the inventor secures not only the resistance of the water but the atmospheric pressure of fifteen pounds to the square inch. The device occupies but little room and creates but little agitation of the water, appears to us to possess peculiar advantages for canal uses.

### Pictorial Engravings.

During 1871 we have presented the readers of this journal nearly 300 handsome engravings in its 832 pages. Many of these engravings were drawn expressly for our readers, and our general selections have been made with a view to their appropriateness to our special Pacific Coast readers. We have the assistance of the best designers in San Francisco, and regularly employ some of the best engravers in the United States, as can be proved by samples of their work. With improved and increased force in this department of our establishment, we promise a still better display of interesting engravings for the coming year.



# MECHANICAL PROGRESS.

## Mode of Manufacture of Russia Iron.

It has generally been supposed that the process of manufacturing Russia sheet iron was guarded as a great secret by the Russian government; but Mr. John Percy, in a lecture recently delivered before the Royal School of Mines, London, remarked that it has recently been ascertained that this secrecy was more dependent on ignorance of the Russian language than on anything else, and proceeded to give the *modus operandi*, which we condense from *The Builder*, as follows:

The iron which is the subject of this manufacture, is derived from pig-iron, obtained by smelting the following ores with charcoal in cold-blast furnaces—namely, magnetite, carbo-nate of iron (*sphaero siderite*), and red and brown hematite. The conversion of the pig-iron into malleable iron is effected either in the charcoal-furnace or in the puddling furnace.

The puddle-balls intended for the manufacture of sheet iron, are rolled into bars 5 in. wide and  $\frac{1}{4}$  in. thick. The iron should be more crystalline than fibrous, and should contain sufficient carbon to render it more like steel than iron. The machinery required consists of one or two pairs of rolls and two kinds of hammers. Reheating is conducted in furnaces of particular construction. The rolls should make not fewer than 50 revolutions a minute. The hammer-heads are of wrought iron, with striking faces of steel. Each anvil consists of a solid block of white cast iron. It is necessary that the hammers and anvils should be so made, in order that they may have the requisite hardness, in default of which the surfaces of the sheets would not acquire sufficient brightness or polish.

The bars are heated to redness, and cross-rolled into sheets about 29 in. square; and in order to become thus extended, they require to be passed through the rolls about 12 or 14 times. The sheets thus produced are arranged in packets of three in each, heated to redness, and rolled, each packet passing through the rolls about 10 times. But just before rolling, the surface of each packet is cleaned with a wet broom, usually made of the green leaves of the silver fir, and powdered charcoal is strewn between the sheets.

The sheets obtained from this rolling are sheared in the dimensions of 28 in. by 56 in. Each sheared sheet is brushed all over with a mixture of birch charcoal powder and water and then dried. The sheets, so coated with a thin layer of charcoal powder, are arranged in packets containing from 70 to 100 sheets each; and each packet is bound up in waste sheets, of which two are placed at the top and two at the bottom. A single packet at a time is reheated, with logs of wood about 7 ft. long placed round it, the object of which is to avoid, as far as possible, the presence of free oxygen in the reheating chamber. The gases and vapors evolved from heated wood contain combustible matter, which would tend to protect the sheets from oxidation in the event of free oxygen finding its way into the reheating chamber.

The packet is heated slowly during five or six hours, after which it is taken out by means of large tongs and hammered. The packet is moved so that the blows fall in an indicated order. After this treatment the surface of the packet presents a wavy appearance, as the striking face of the hammer and the face of the anvil are both very narrow. When the packet has traveled about six times under the hammer, in the manner specified, it is removed; and immediately afterwards completely finished sheets are arranged alternately between those of the packet.

The actual cost of manufacturing these Russian sheets is about \$64 per ton, to which must be added general charges, which raise the amount to \$83 per ton, exclusive of profit. The average price of sheet iron at the fair of Nijni-Novgorod is from \$110 to \$125 per ton.

**ENGRAVING ON GLASS.**—Instead of using aqueous hydrofluoric acid for engraving on glass, M. Siegwart recommends a solution of eight parts of any alkaline fluoride dissolved in one hundred parts of water, mixing this solution just previous to use with one part of oil of vitriol. In order to remove every trace of organic matter, the glass before immersion in this bath should be thoroughly cleansed with a solution of bichromate of potassa, acidulated with oil of vitriol. A few hours' exposure is stated to be sufficient at ordinary temperatures to obtain a fine frosted surface.

## Repairing Machinery.

The inevitable waste and wear which always, in the end, necessitate the abandonment of everything in its day useful to mankind, is compensated for and retarded by repairs. But in the attempt to do this, there is often much time and money uselessly squandered.

One of the principal causes of loss is delay in making timely renovations and substitutions; another is injudicious ways of repairing; and, lastly, repairing that which it were wise to abandon altogether. Instead of at once correcting what is amiss in a tool or a machine, many will let it run as long as it is possible to work with it, when it is often found impracticable ever to make it serviceable again; or, if not so badly injured as this, that one deficiency, which it would have cost little to supply, has caused many worse than the first.

In making repairs it is often thought a poor mechanic will do just as well as better and more costly skill. No greater mistake can be committed. We assert that the mechanical ingenuity, ready command of resources, knowledge of the adaptability of means to ends, skill of eye and hand, common sense, and sound judgment—which go to make up an accomplished mechanic—are more necessary in a repair shop than anywhere else. Here it is not the same old routine, day after day, the making and putting together of forms so familiar as to require little original thought; but every job varies in some particular from every other, and each must be repaired in a different way. It requires brains as well as manual skill to do this kind of work in a creditable manner, and every manufacturer will find it policy to put a first-class mechanic in his repair shop.

Lastly, in constantly etopping old machines to patch them up into make-shifts, there is often more money sunk than would supply their places with new ones. Many people estimate the cost of repairs only from the cost of material and labor; but in many cases the time lost in repairing is the largest element of expense, especially when the stoppage of one machine entails the stoppage of many others.

In repairing machines the following rules ought, therefore, to be observed: First. Repair as soon as anything gets out of order. Second. Intrust none but good mechanics with repairs. Third. Be careful not to continue repairs when machines cease to be worth them.—*Scientific American*.

**IRON AND STEEL.**—Mr. Gerhard, metallurgical chemist, of Wolverhampton, Eng., is proceeding with his experiments in the manufacture of iron, and has succeeded in producing from the ore, refined iron of a high order, at much under the cost of a similar quality very much sought after by certain machine founders and producers of finished iron. Mr. Gerhard, however, aims at the making of steel at much less cost than any of the methods now in vogue, and he has much confidence that he will soon succeed. He believes that he can see his way to the production of finished iron, in a pure state, without the interposition of the puddler.—*Journal of Society of Arts*.

**CUTTING BEVELS.**—The following is given by the *Scientific American*: 1st. Draw a rectangular parallelogram, the shortest side corresponding with the thickness of the board to be mitered, the other side with a line cutting the board horizontally when set at the required flare. Draw the diagonal line and the angle formed by the diagonal, and the shortest side is the required miter. If different sides of the box or seat flare unequally, each side must be treated by the same rule separately. 2d. Add half as many degrees to the miter angle (45°) as the side of the box deflects from the perpendicular. For instance, if the side of the box flares at an angle of 45°, an angle of 67½° will miter the corner.

**HOW FINE IRON CASTINGS ARE MADE.**—The finest castings of iron and bronze are made by using models of wax. These are imbedded in moulds made of fine ground earth, which are then heated red-hot. The mould is baked, the wax disappears, and the metal, when poured in, exactly takes its place. The wax model is often made in a gelatine mould, which, being very elastic, will slip off the original object which is to be copied into metal.—*American Artisan*.

**IMPROVEMENT IN MAKING STEEL.**—A new process for making steel has been invented by a Frenchman, and adopted at the steel-works in Givors, which requires from an hour to an hour and a half, and is so conducted that it can be arrested at any moment, and any desired quality of steel obtained.

# SCIENTIFIC PROGRESS.

## What Railway Dust is Composed of.

Mr. Joseph Sidebotham has made a microscopical examination of dust blown into a railway carriage near Birmingham. He says: "I spread a paper on the seat of the carriage, near the open window, and collected the dust that fell upon it. A rough examination of this, with two thirds power, showed a large portion of fragments of iron, end, on applying a soft iron needle, I found that many of them were highly magnetic. They were mostly long, thin, and straight, the largest being about 1-150th of an inch, and, under the power used, had the appearance of a quantity of old nails. I then, with a magnet, separated the iron from the other particles.

The weight, altogether, of the dust collected was 5-7 grains, and the portion of those particles composed wholly, or in part of iron was 2-9 grains, or more than one half. The iron thus separated consisted chiefly of fused particles of dross or burned iron, like 'clinkers,' many were more or less spherical, like those brought to our notice by Mr. Dancer, from the flue of a furnace, but none so smooth; they were all more or less covered with spikes and excrescences, some having long tails, like the old 'Prince Rupert's drops'; there were also many small, angular particles like cast iron, having crystalline structure.

The other portion of the dust consisted largely of cinders, some very bright angular fragments of glass or quartz, a few bits of yellow metal, opaque, white, and spherical hodie, grains of sand, a few bits of coal, etc.

After the examination of this dust, I could easily understand why it had produced such irritation; the number of angular, pointed, and spiked pieces of iron, and the *Scoria*, or clinkers, being quite sufficient to account for the unpleasant effect.

I think it probable that the magnetic strips of iron are laminæ from the rails and tires of the wheels, and the other iron particles, portions of fused metal; either from the coal or from the furnace hers. The large portion of iron found in the dust is probably owing to the metal being heavier than the ordinary dust, and accumulating in cuttings such as those between the two stations named.

If I had to travel much by railway through that district, I should like to wear magnetic railway spectacles, and a magnetic respirator in dry weather.

## Science in Prussia.

Sir William Thomson stated in his recent address before the British Association, that in Prussia every university, every polytechnic academy, every industrial school, most of the grammar schools, in a word nearly all the schools superior in rank to the elementary schools of the common people, are supplied with chemical laboratories and a collection of philosophical instruments and apparatus, access to which is most liberally granted by the directors of these schools to any person qualified for scientific experiments. In consequence there will scarcely be found a town exceeding 5,000 inhabitants that does not offer facilities for scientific investigations at no other cost than that of the materials wasted in the experiments. And further, professors, preceptors, and teachers of secondary schools are engaged on account of their skillfulness in teaching; but professors of universities are never engaged unless they have already proved by their own investigations that they are to be relied upon for the advancement of science.—*Scientific American*.

**EFFECT OF COLD ON GAS.**—It may surprise some of our readers, who have given no attention to such subjects, to learn that the illuminating power of gas depends in a very marked ratio upon the temperature of the air in which it is burned. True, it has been found, taking the amount of light emitted at 65 degrees of Fahrenheit as a standard of 100 parts, that at 32 degrees, or the freezing point, the percentage of light is only .76; and that at 4 degrees above zero it is only .33, or about one-third of what it is at 65 degrees. On the other hand, increased heat if not accompanied by a corresponding amount of light, since the temperature of boiling water causes an increase of only four per cent. over the standard; and that of 320 degrees, or boiling paraffine, only 18 per cent. The loss of illuminating power upon the application

of cold is supposed to depend directly upon the condensation of the hydrocarbon vapors; since, at a temperature of 4 degrees a solid mass was found congealed upon the sides of the tube, containing, among other substances, benzole, ammonia and nitric acid.

## A Resisting Medium in Space.

One of the chief arguments in support of the theory of a resisting medium in space, has been deduced from the retarded motion of Encke's Comet, which, just now, is attracting marked attention from astronomers. Professor Encke pursued his studies and calculations upon his favorite theory of a resisting medium, in connection with the movements of this comet, for more than forty years, or until within a short time before his death, which took place in 1865. In 1861 he published a resumé of his labors, which seemed to put the truth of his theory beyond a doubt. There are, also, two other comets, Faye's and Winneck's, which have furnished important evidence on this question.

Prof. Moëller, of Sweden, has devoted much time to calculating the movements of the latter named comet, end up to 1865, was inclined to agree with Encke in his theory of a resisting medium. But in 1865, in revising his calculations with regard to Faye's comet, he discovered an error, by correcting which he was enabled to refer the movements of that body to a strict conformity with the laws of gravitation, independent of a resisting medium in space. So accurate was his prediction of its next return, that upon the first night it was sought for it was found in exactly the predicted place—the most accurate calculation of the return of a comet ever made. In view of this error the Professor is inclined, notwithstanding a very small unexplained perturbation observed in Winneck's comet, to conclude that the movements of that body are also in strict conformity with the laws of gravitation. He also thinks, for reasons given, that a careful revision of Professor Encke's calculation will lead to a similar result.

Hence, so far as the motions of comets have been determined, the evidence is against the theory of a resisting medium in space; while no one has ever referred any retardation in the movements of the planets to any other than the disturbances of known bodies. If it should be proved that a retardation actually exists in the movements of Encke's comet, there are other causes, now admitted possible, to which such retardation may be attributed, other than a resisting medium. We have condensed the above from an article by Asaph Hall in the December number of the *American Journal of Science and Art*.

**HEAT ON THE GROWTH OF PLANTS.**—A paper has recently been published by Koppen, upon the relationship of conditions of heat to the phenomena of growth in plants; his first inquiry being limited to the question connected with the germination of the seed. The general conclusion arrived at was that varieties of temperature were in all cases prejudicial to the growth of the germ, even when amounting to but a few degrees, and these within limits favorable to energetic growth. That is to say, the germination process more rapidly at a low temperature of a uniform degree, than a higher, where subjected to more or less variation. From that we derive the inference that a nearly uniform spring temperature, with a clouded sky, is more favorable to rapid development of vegetation than the alternation of hot days and cool nights, it being of course understood that the mean temperature in each case is about the same.

**A NEW MINERAL.**—Prof. F. Sandberg announces a new mineral from Guadalcanal, Spain, which he names glaukoppyrite, and which has the following centesimal composition: sulphur, 2.36; arsenic, 66.90; antimony, 3.59, iron, 21.38, cobalt, 4.67; copper, 1.14. It occurs, associated with carbonate of lime, tetrahedrite, and pyrrargyrite, in rounded aggregations, which, when magnified, are found to be composed of a series of thin layers. Its color is a light led-gray, approaching tin-white.

**SOLUBILITY OF METALS.**—Mr. Chas. A. Leely of New York, has recently been experimenting on solubility of metals without chemical action. Among other matters he has been investigating the properties of ammonium amalgam, which, from the mercury being increased ten fold in bulk, and also from the fact that it is compressible in a syringe, recovering, however, both its volume and appearance on pressure being removed, he believed to be a mercuric froth rather than an amalgam.



## CORRESPONDENCE.

### LETTER FROM SONORA, MEXICO.

EDITORS PRESS:—As there is considerable California capital already invested in this part of Sonora, and a good probability that much more will soon follow, I have thought that a little plain talk about things here in general, and mining in particular, may be of interest to your readers. I will promise to tell the truth, as near as can be expected of a man who has seen the ups and downs of Mexico for the last nine years, and become somewhat naturalized to the ways of her people, and more or less informed as to her natural resources.

My earnest advice to all that depend on their labor, is to stay in California, or keep away from this country, at all events; for all kinds of labor are paid less here than in California or the Territories. Even skilled mechanics are paid less here, and that is the only class that can get anything to do. The common labor here is performed by the natives at a price that a foreigner would starve on; and I do not exaggerate when I say that the richest man in Sonora does not live as well as an ordinary mechanic in San Francisco. The materials for good living cannot be obtained here. I have read eloquent dissertations on the tropical fruits, and of their abundance; but I have not seen them in any abundance during my nine years wandering over a large portion of four States of Mexico. There are all kinds of tropical fruits here, but they are not abundant or cheap enough to come into general consumption.

This state of affairs may appear incredible, but it is too true; and that, too, with a country unequalled for natural resources. Sonora and Sinaloa, in particular, have the finest sugar lands in the world, and millions of acres of them; yet sugar is imported from Cuba, refined in San Francisco, and sent here and sold to the consumer at an average of 37½ cts. per pound. With millions of acres of corn and wheat land, the people are starving here to-day. Indolence, ignorance, and keeping of feasts established by the Church, has much to do with this; but the main cause is the want of security and protection to life and property.

#### The Mines.

Mining enterprise, as a general thing, receives more protection than any other; but that is because the mines furnish the great source of revenue, and a crowd of pronounciadores cannot pack off a mine as easy as they can a herd of stock. The steam engine is quietly working out the mining problem and proving that Sonora, with all its drawbacks, has good mining properties and paying ores. As a general thing they require a large outlay of capital to develop them, and should there be peace and quiet as we have had it the last two years, the time is not far distant when Sonora will redeem her credit and establish the fact of her being one of the richest mining countries in the world. [This was written before the late revolutionary outbreak.—EDS. PRESS.]

The law allowing the shipment of ores out of the country is gradually drawing foreign capital here, particularly English and German, and it wants but a slight change in the law so as to allow bullion to be shipped free to draw an immense capital hither. Even a permission to ship base metal bars would work a wonderful change in mining here, for there are a great many mines near the coast that would pay well if the produce could be sent out of the country and refined, where the base matter can be turned to account. Now only those mines can be worked which yield very docile ores, such as can be worked in the patio, or those that have very rich lead ores which can be worked in the vaso. The pan process, so far in this district, has been a failure, more from the want of practical men to work it than anything else, and it has been condemned without a fair trial. My experience tells me that ores that can be worked by the patio process, as a general thing, will give a better result in the pans.

#### Extensive Patio Works.

The Tirito & Almado Co. has just com-

pleted the putting up of two pans, and a practical pan man is going to give them a thorough trial. Should they succeed, it will make many thousands of dollars in that company's favor, for they have such an abundance of docile ore from \$35 to \$70 per ton, that they will have to build over ten acres of patio. They have now a patio that takes over 300 tons to fill, and it don't begin to take the stuff from a 30-stamp mill, and that running only half time, with a mountain of ore on the dump, from one or two levels in the Tirito alone. What will it be when they reach the Providencia and Mina Grande, where the ore is known to be 41 feet wide, solid, clean ore? They are pushing on the tunnel level as fast as it can be driven; it will drain the Mina Grande and the Dios Padre, the adjoining mines on the north, over 600 feet deep.

The Dios Padre Co. are sinking a shaft on the south end of their property, which is now down 315 feet and will be completed by the time the tunnel drains the lower works of the Mina Grande, and without a doubt it will drain the Dios Padre also. If it does not naturally, a short level drawn south on the vein will open the communication and let the water pass off.

#### Other Mines.

I understand that the Dios Padre Co. is making some arrangements to reorganize or join with some English capitalists to put in a tunnel from the Alamos side of the mountain. The tunnel would be about 6,000 feet long to strike the Dios Padre at a depth of 800 feet. Quintoro and Libertad it would cut some eleven or twelve hundred feet deep. I hope they will go on with it for it would develop one of the largest and best mining properties in the world, for the tunnel will run through and under the deepest workings of the most famous mines of Sonora—Quintoro, Libertad, and Dios Padre, to say nothing of many small veins that it would cross-cut.

The Quintoro Co. are putting an engine and hoisting gear on their main shaft and expect to be in a "bonanza" soon. The last work done in the lower levels took 60 men to man the pumps, and they could only work three fronts so they abandoned the lower works and took out the pillars above the water level.

That is the history of all the mines in this district. They worked them down until the water became troublesome, then took out the pillars and turned the mine over to the garbociras (?) and they leave it beyond redemption, only by running a tunnel or sinking a shaft below the old works and putting up modern machinery to facilitate the work.

#### General Remarks.

This district is situated very favorably for mining enterprise. There is a good natural wagon road to two ports on the coast, so that machinery can be hauled to either of the mining centres, viz: Promontorio or the Aduano. Wood for fuel is abundant, delivered at \$6 per cord. Salt can always be laid in at about \$20 per ton. Lime and building material is abundant, except for heavy square timber; they have to be packed out of the mountains by men. Mining labor is abundant at from 50 to 75 cents per day, except about four weeks in June and July, when the feast of San Juan takes them all to the rivers to eat water-melons and petayee, a fruit of a species of the cactus. Masons, carpenters, and blacksmiths, such as they are, generally get from \$1 to \$2 per day. Drillers in the mine are paid by the hole, 12½ cents, a hole 16½ inches deep; they will work three 6 holes a day. Some of the best ones earn as high as \$9 per week, working two shifts.

The Poblador, an officer corresponding to our captain, is generally paid \$8 per week. You can see by these prices there is very little chance of foreigners competing in the labor market. They can't live without stealing and the natives monopolize that part of the business. I will hack all other nations on carrying an election; but when it comes to stealing ore or anything else that can be packed, I will bet my pile on the native, and give foreigners a discount.

Some companies here have brought stealing down to a minimum by commissioning the store-keepers to buy the stolen ore for their account, and then the company charge the amount to the watchman about the mine, *pro rata*.

Our mail facilities are some better since the Panama steamers touch at Mazatlan, and the country generally begins to feel a progressive influence, and if the changes made by the elections don't give her a backset there is some hope that she will come out in an age or two, at least with some

foreign help; for there is little hope of her working out her own salvation. When the man that is looked up to as the most progressive man of the time and most enterprising ranchero, owns a first-class flour mill and reaps 1,000 acres of wheat, with butcher knives and carries it to the stack in rawhide sacks, and uses a wooden mill to crush his sugar-cane with, with a steam engine and waterwheels standing idle alongside, he is a man far ahead of the age here in progress. They tried to make him Governor two years ago, but Pesquera was too heavy for him. Pesquera goes to Guaymas occasionally and the steamer-hoys have given him an idea how to manage elections so that progressive rancheros stand a poor show.

The rainy season has been a very wet one. The last year has been terrible on stock here. We had no rain from August to June of this year. Flour is worth \$18 per barrel, and everything in the grub line in the same proportion, but I must close this long letter which I know stands a good show to go into the scrap basket, but should anything of interest turn up in my rambles over this God-forsaken country, I will come again. RAMBLER.  
Alamo Estrado, Sonora, Mex., 1871.

### Mines in Siskiyou County.

EDITORS PRESS:—As a great deal of attention is being directed to the mines in this county, I take pleasure in contributing to your valuable mining journal some facts in regard to prospects in this vicinity.

Siskiyou county is very rich in gold deposits, and at the present time offers greater inducements for the investment of capital than almost any part of California. A year hence when the railroad is extended this far, the mines here will attract still greater notice.

In Yreka District, a body of Portuguese miners are doing well and get large returns for their labor. About Hawkinsville and Long Gulch and Canal Gulch, gold is found, and if properly drained, the whole country from Greenhorn to Hawkinsville, a distance of nine miles, would be worked to great advantage. A company is about to construct a tunnel to drain this district.

In Hnmhug District, nine miles from Yreka, the mines are more productive than in any other part of the county. Both the quartz lodes and placer diggings are paying well.

Messrs. Lash & Co. in the Eliza mine have an almost inexhaustible vein of ore which yields not less than \$16 per ton, and from that to \$25 and \$30 per ton. The vein is 7 feet wide, 90 feet below the lower level and there is no mine in the State from which ore can be more cheaply and easily extracted and reduced. It is thoroughly opened by a main shaft 300 feet deep, and by five different levels which run in on the vein, exposing large bodies of valuable ore, with rich sulphurets. They have also a fine 15 stamp quartz mill. With larger reduction works, and improved methods of concentrating the sulphurets, this mine would become one of the most profitable in the State, from the great extent of the vein, good ore and facilities for easily extracting and working it.

The Siskiyou county in the same locality is owned by a San Francisco company who propose erecting a large steam mill next spring. The Sbasta butte mine also pays well, and the placer diggings on Humbug Creek are yielding largely.

In Scott River district, Chinamen have taken out large quantities of gold dust and a number of hydraulics are kept in operation. A San Francisco company have been building ditches, and saw mills near Happy Camp, and will soon commence operations. One surface claim on Klamath is taking out about \$1,000 a week.

At Cottonwood the ledges prospect well, and at South Fork rich quartz ledges have been discovered and will be worked as soon as the miners can obtain means to erect the necessary machinery. In Scott Valley the mines are being worked by drifting and hydraulics. There are gold-producing basins in other parts of the county, but much remains to be done in tunneling the hills and river beds and in drainage.

Large streams well adapted for milling power are numerous, and the best of fuel

can be had for the cutting and hauling. The cost of milling ores is less in this county than almost any other part of the State.

When the Oregon and California Railroad which is being rapidly pushed forward and will pass directly through this region, is completed, this entire section from the extent and value of its mines and the facilities for cheap milling, is destined to become one of the most productive mining localities on the Pacific Coast.

O. E.

Yreka, Dec. 11th, 1871.

### Mechanical Hints.

#### Plastered Walls and Ceilings.

Particular care should be used in selection as to the strength and length of the hair to be used in the plaster for ceilings, and also as to the substance of the laths, which should in all cases be double. The plaster should be laid on with the minimum of thickness, a point much neglected.

With regard to the quality of the sand, it cannot be too good. Sand is apt to make the plaster too "short" only when there has been too much employed, and that with weak chalk lime. It is impossible that the admixture of loamy earth in any proportion can benefit any description of mortar or plaster, and therefore clean grit must be preferable to either pit or road sand, for loam in any shape is detrimental in proportion to its amount.

One word with regard to a possible substitute for hair, as hair is becoming every day more difficult to obtain. In the pulling down of portions of old work for the reparation of the Lollards' tower at Lambeth lately, some plaster of remarkable hardness was found. It was far superior to any of the rest, and upon examination was discovered to have been mixed with chopped rye straw (recognized by several of the heads which had been mixed up) instead of hair. This plaster was wonderfully sound and firm. Possibly other descriptions of straw might be found equally suitable for the purpose, and at any rate it would be quite worth while making some experiments on this subject.

Having obtained a really good plaster to work with, it is much to be wished that it might be applied in a somewhat more solid and durable manner than is usual, and that instead of flimsy laths nailed under the joists on each side of partitions to receive it, short pieces of wood were fixed in between the joists or quarters and the plaster trowelled on from front and back, so as completely to envelop these pieces of wood. By this means the plastering on partitions and ceilings would not be merely suspended coats, but the integral portions of the structure, which, when dry, would become most imperishable and incombustible. Thus, instead of being flimsy, interconnected things, inviting fire to destroy them, and the means of conducting that destroying element to all the other portions of the building, they would be, as it were, thin vertical or horizontal shields to prevent fire from spreading and touching the timbers. The use of plaster is, to a certain extent, common in Europe, and well deserves the attention of all architects.—*Scientific American*.

OLD CLOTHES.—Sneer not at old clothes; they are made by no lot and sacrifice; by careful folding-away, that they may last until the dear ones are provided for. If many an old coat could speak, what tales it would tell of the noble heart beating underneath. Yonder rusty garment would repeat the struggles of a devoted father whose son is earning laurels at the college, hard by. How he counted his farthings and choked down his pride, that his boy, his noble boy, might yet do him honor. That faded shawl, folded tightly over those spare shoulders. Year after year has the mother cleansed and mended and laid it carefully away (as she called it) "good and new," that her blue-eyed daughter might have an education. And the mother smiles over the dim, dusky-patterned ribbon and prime old merino, that were cleaned up to enable her to buy Bessie a pretty bonnet and a dress such as she deserved. Oh, that blessed self-denial of aspiring poverty! Hallowed be the old bonnets, old cloaks, old coats, aye, and old shoes, when such love points to them as monuments. More than one bright and shining light owes its brilliancy to old clothes; more than one star in literature, philosophy and science.

TO CLEAN LAMP-SHADES.—Lamp-shades may be cleansed with soap or pearlash; these will not injure or discolor them.

CORN starch makes the best paste for scrap-books.



# MINING SUMMARY.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

## California.

### ALPINE COUNTY.

**QUARTZ MILL.**—Monitor *Miner*, Dec. 16th: The Monitor & North Western mill is expected to be in readiness for crushing on New Years day.

### AMADOR COUNTY.

**THE NEW DISCOVERY.**—Jackson *Ledger*, Dec. 22d: The new discovery recently made in placer diggings near Drytown, will prove to be lasting and valuable. D. Worley, a few days ago sold one-third of the claim for \$1,000 and has since refused \$3,000 for the remainder.

### NAPA COUNTY.

**ST. HELENA.**—Napa *Republican*, Dec. 16th: From 3 to 5 large teams are loading daily with machinery for the Pope Valley Quicksilver Mines.

### NEVADA COUNTY.

**THE SITUATION.**—Grass Valley *Union*, Dec. 19th: The Erie mine is southwest from Grass Valley, on Deadman's Flat, near the head waters of Squirrel creek. There are 2 or 3 men working. The shaft is down 55 ft., on the incline. Three crushings have been made of rock which was taken out while sinking. The first one went \$111 to the load; the second \$145 and the third \$500. The rock in the ledge is looking well.

Gen. Grant is south from Grass Valley 4 or 5 miles. The ledge is improving as the miners go down. The last crushing gave \$85 to the ton. Drifts are being run on the ledge, while sinking is at the same time continued.

The John Bright mine is southeast from town near the Colfax road. Work in the way of sinking has been prosecuted with energy, and the shaft is down more than 200 ft. on the incline. The rock is looking very well.

Ben Franklin is near the Bright, and is being constantly worked. The shaft is down 60 or 70 ft. and pay rock has been taken out.

Greenhorn is 7 miles from Grass Valley. The shaft is down about 262 ft. on an incline. Sinking will continue until water prevents and then drifts will be run on the ledge. In the bottom of the shaft the ledge is about 5 ft. thick, showing free gold and heavy and rich sulphurets. On the dump pile there are about 500 tons of ore, which is waiting to be crushed.

Massachusetts Hill is idle with the exception of work on the Shanghai ledge, supposed to be a spur of the main ledge of the hill. The locations or claims of the Massachusetts Hill are as follows: Scadden Flat claims, now idle; Stockbridge claims, to the south of Scadden Flat, also idle, and on which there is a shaft only about 16 ft., deep; Massachusetts Hill Co.'s location, mill and underground works are idle; Rocky Bar claims, and known to be rich, Polkinghorne claims idle.

Black Lead south of Massachusetts Hill is regarded as valuable property. No work has been done upon it for several years.

Perrin's mine has good rock, estimated as being worth over \$80 to the load, by mill process. The ledge is strong and well defined.

South Star has been worked, up to within a few days, with good prospects of developing a fine mine. The ledge is a large one.

North Star is paying well and is being worked with a full complement of hands. The sulphurets from the rock are extremely rich.

Coe is being steadily worked. The shaft is down 350 ft. and a drift to the west is run 149 ft. The rock in the bottom is looking well, showing gold and heavy sulphurets. The ledge in the drift is of an average thickness of 3½ ft.

Eureka Mine prospects are most hopeful. For the last 12 days, only 20 stamps of the mill have been running. The clean up for the time is gold valued at \$22,000. In the lowest depths of the mine there is a steady improvement in the character of the rock.

**MONTANA LEDGE.**—Nevada *Transcript*, Dec. 16th: The owners of this mine have suspended work for a time, in order to have new hoisting works erected. The ledge is in Willow Valley, near this city. They have sunk down 112 ft., and run along about 450 ft. The ledge is about 10 inches in thickness and looks splendidly. The last crushing from the Montana yielded \$40 per ton, and it is the impres-

sion that the rock in sight will pay even more than that.

**NEW HOISTING WORKS.**—Kitts & Tully have just had new hoisting works erected on their mine—the Buckeye—at Willow Valley. Work was commenced about 2 weeks ago, and the Co. have a fine looking ledge of about 3½ ft. in thickness. They have let a contract for sinking. In the spring they intend to erect a mill.

**LOCATIONS.**—The Hope Gravel M. Co. have located 10 claims on Montezuma Hill, adjoining the mine of the Enterprise Co., in Bridgeport township.

McEambridge and others have located 600 ft. of ground in Omega Dist. at the head of Missouri Cañon and intend holding and working the same for mining purposes.

**ENTERPRISE.**—The Enterprise Co., working in gravel at Buena Vista Hill, 3 miles east from this place, is preparing for effective work. The Co. has purchased a steam engine to be used for hoisting and pumping purposes.

**HEUSTON HILL.**—At Heuston Hill mine 12 men are at work taking out rock. The last crushing paid \$180 to the load.

**GOOD QUARTZ.**—Nevada *Gazette*, Dec. 16th: Elleson, Nichols & Small, owners of a quartz claim on Selby Flat, have taken out a large amount of ore and are having the same crushed at Murchie's Mill, on Deer Creek. The rock is yielding \$30 per ton.

**DAISY HILL** is engaged in putting up machinery for hoisting and pumping purposes and the work of development is going on at the same time. Since the present Co. has worked the mine 175 loads of rock have been crushed. This rock gave \$11,395 worth of gold. The last crushing of 42 loads paid \$155 to the load. The rock in sight looks well.

**NEW YORK HILL.**—This mine has been leased by a party of working men. The mine is free of water and the miners are at work in it on the fourth level.

**KNIGHT OF MALTA.**—The ledge is 3 ft. in thickness, heavily charged with sulphurets and shows well in free gold.

**HEUSTON HILL.**—This mine is being worked with success, by parties who have a lease of the mine. The rock coming out shows well.

**GRAVEL MINES.**—The Hope, on Alta Hill, is the only mine in that locality at work. Altona has shut down for the present, and will remain so until heavier machinery is put on. The Altona struck into the old works of Alta No. 1, and hence the rush of water. Town Talk, to the east of town, is running ahead with the usual good results. The Enterprise, near Buena Vista Hill, is having steam machinery put up for hoisting purposes. The Enterprise has rich gravel in the shaft. The Webster is in a fair way to resume work at an early day; work is being done in washing over tailings and waste dirt. The Picayune is driving its tunnel ahead, and is in gravel which prospects well. The rains will make the Baltic commence work.

**OUTSIDE DIST.**—The Buchanan mine is about 3 miles above Nevada city. The owners are having a tunnel run into the hill, it is in about 150 ft., and in 30 ft. more it is expected that the ledge will be cut. This will give 120 ft. backs. The ledge is about 14 inches thick. The Buchanan paid \$152 to the ton.

The Erie mine in Eureka South is doing well. The shaft is down 200 ft.; this ledge is 27 ft. wide, between the walls, and the rock pays an average of \$12 to the ton.

**LOCATIONS.**—Nevada *Transcript*, Dec. 19th: W. Smith and others have located 1,200 ft. on a certain quartz ledge, on Independence Hill, in Grass Valley township, being an extension of the Independence mine. They have consolidated the same with ledges owned by Moran and others, under the name of the Consolidated Quartz M. Co., and they intend to open the ledges by means of a tunnel to a distance of 1,000 ft. from east to west, and 1,200 ft. from south to north, and beginning at the northeasterly boundary line of Independence tract.

The Stevens Co. have located 1,200 ft. on the Montes Bay ledge, on Gold Flat, Nevada township.

**PREPARATIONS.**—Grass Valley *Republican*, Dec. 19th: Ashburn & Baker, of Scotch Flat, are digging a ditch from the north fork of Deer creek to their hydraulic claims at Scotch Flat. They have completed 3 miles and have about 3 miles more to be finished.

**NORTH STAR.**—For a 10 days run there was cleaned up \$9,400.

### PLACER COUNTY.

**ST. PATRICK MINE.**—Auburn *Herald*, Dec. 22d: Work is steadily progressing with the most satisfactory results, and a large amount of rich rock is on the dump.

The new 15 stamp mill is completed and in operation on St. Patrick quartz.

**PETER WALTER MINE.**—The Co. have complete steam works on the mine, propelled by a 25 horse power engine, with friction gear and every thing working in most perfect order. The main shaft is down about 120 ft., and work is being prosecuted night and day with 3 shifts, 12 men in all working under ground. Levels are being run both east and west from the shaft at a point 116 ft. deep. These levels are in some 10 or 12 ft. and good ore, showing plenty of free gold, is being taken from them and hoisted to the surface. The value of the quartz taken from these drifts is placed at from \$40 to \$50 per ton. It is in contemplation, to erect a 10 stamp mill.

### SAN DIEGO COUNTY.

**BULLION.**—San Diego *Union*, Dec. 14th: There was shipped to S. F. by W. T. & Co.'s Express on the California, bullion amounting to \$1,165.

**BANNER DIST.**—A PRESS correspondent sends us the following:—Until the recent rains the quartz mills have been running with a scant supply of water, some of them using the same water several times, after settling it. The Ready Relief Co. are putting up a water-power mill. The pumping and hoisting works of the Redman mine are working satisfactorily, and good ore is being extracted. The Kentuck ledge is 18 inches wide; carries splendid rock. The Madden Co. have struck a large body of ore in the northwest drift which shows plenty of free gold. The Antelope ore is turning out better than it has for the past 6 months. Extensive improvements are being made in the mill of this company which will enable them to work some of the refractory ores of the district to more advantage.

## Nevada.

### COPE DISTRICT.

Drs. Marrotte and Reese have lately found a rich ledge near the St. Nicholas.

**TECOMA MINES.**—Carson *Register*, Dec. 13th: The milos are 5 miles from Tecoma, and a town is rapidly going up there. Buel & Bateman's furnace made a run of 32 hours, during which time it turned out 40 tons of bullion, carrying \$60 per ton in silver. There is an immense body of very rich ore in sight in the Buel mine. There are several other mines in the vicinity, particularly the Ironclads Nos. 1, 2, 3 and 4, equally as rich as the Buel, and the mountains are covered with prospectors and miners at work on promising ledges.

### EUREKA DISTRICT.

**MAGNOLIA Co.**—Eureka *Sentinel*, Dec. 15th: This Company is working the following mines: Newport Nos. 1 and 3 and the Astor mine. On the Newport No. 1 a shaft is down 54 ft. disclosing a ledge of fine milling ore, 7 ft. wide. Average samples of ore assay from \$70 to \$110 per ton. There is a commodious ore house over the shaft, 20x40 ft. in size, with a blacksmith shop attached. The Newport No. 3 is also vigorously worked, and an improved quality of ore has lately been struck. The Astor mine, a little south of the Newport series, is a recent purchase. Work has just been resumed in the old shaft, which is down 40 ft. showing a splendid body of high grade ore. It is the intention to continue the development of the mines all winter, and in spring either a mill or smelting works will be erected.

**FRIEBURG.**—Same paper, Dec. 16th:—Considerable work is going on in Frieburg Dist., Judge Goodwin has commenced the erection of extensive smelting works, and other improvements are also being made.

### ELY DISTRICT.

**BULLION.**—Pioche *Record*, Dec. 17th: W. F. & Co. shipped since Dec. 10th, for Meadow Valley Co., 67 bars of bullion, valued at \$87,488.11.

**BOWERY CONS. M. & M. Co.**—The trustees have already purchased and on the way here a No. 1 10-stamp mill, which will be erected as soon as possible at some point near Bullionville. As soon as the mill is erected, it will be steadily run upon ore from the Bowery mine. The Co. will add more stamps as soon as the main working shaft is sunk to the depth of 300 ft. Steam hoisting works will soon be placed on the mine at the main shaft, east of the old dump. The dump has over 300 tons of nicely assorted ore in it awaiting the mill.

**ALPS.**—Work in the lower level is being pushed ahead rapidly. We were shown specimens of ore yesterday from the 150 ft. level, which will assay up in the thousands. It is of chloride and will work well by mill process.

**PAGE AND PANACA M. Co.**—This claim is located on Panaca Flat, 700 ft. westerly

from the Discovery shaft of the Panaca claim, and from the appearance of the walls and the character of the material coming out of the shaft at a depth of 100 ft. it is evident the Co. will soon strike good ore.

### HUMBOLDT.

**ARIZONA CONS.**—Unionville *Silver State*, Dec. 23d: During the last month or two the mine has been steadily improving. The south incline is down 125 ft. and the ledge is 4 ft. thick at its deepest point, and contains a fair proportion of shipping ore. The milling ore which remains after selecting the shipping ore, assays about \$65 to the ton. There are 4 other shafts or inclines being sunk from the main lead, in all of which fine bodies of ore are found running, from 2 to 7 ft. in thickness, with more shipping ore in sight than has ever been exposed in the mine at any one time before, since it was opened. On the second level this Co. has about 700 ft. lineal measure, of ledge exposed, with apparently unlimited depth. The upper stopes have greatly improved of late, and on the whole the mine never looked so well as at this time.

**EOLIPSE.**—The owners of this mine are driving ahead with their work. They have a quantity of ore at the Pioneer mill, being worked.

**PERU.**—Work on this mine goes on with increasing strength and body of vein matter.

**INSKEEP.**—The Inskeep mine is producing considerable quantities of good ore; a large percentage of which is shipping ore.

**SHEBA.**—Work is still being pushed upon this mine. They are taking out considerable quantities of shipping ore, and a very large amount of milling ore which assays from \$80 to \$120 per ton.

**DE SOTO.**—Work is again commenced on this mine.

### REESE RIVER.

**SARATOGA MINE.**—Reese River *Reveille*, Dec. 15th: The incline is down 320 ft., the ore house full of rich ore and the mine looking better every day. The Props. have 4 men at work and are taking out an average of \$400 every day.

**METACON MILL.**—Same paper, Dec. 19th: We saw to-day at the banking house of Paxson & Co., 10 bars of bullion from the Metacoon Mill, valued at \$7,464.85, and weighing 10,301 ozs., the result of about two weeks run. (day time only,) from ore from the Pacific M. Co's mine, on Lander Hill.

**CROWN POINT.**—Virginia *Enterprise*, Dec. 17th: The Nov. receipts from this mine footed up \$234,797. The assays of ore at the 900-ft. level average \$50 per ton, and at the 1,200-ft. level, \$110 per ton.

**HALE & NORCROSS.**—The receipts of bullion from the Hale & Norcross for Nov. amounted to \$6,176.

The main incline in this mine is sunk 100 ft. below the lowest level. This work is being pushed vigorously, and 4 ft. is the average daily progress. So soon as a perpendicular depth of 100 ft. shall have been attained the ninth level will be opened. Important developments may be looked for on the Virginia end of the Comstock within a very short time, as the Hale and Norcross, Savage and Ophir will soon open new levels.

**SUTRO TUNNEL.**—The Sutro Tunnel was yesterday in a distance of 2,620 ft. Work will be commenced on all the shafts next Tuesday.

**MILLS SHUT DOWN.**—Owing to the flood nearly all the mills on Carson river have been temporarily shut down.

## Colorado.

**MR. BROSS.**—Cor. Central *Register*, Dec. 6th: Far above the timber line is the Tar Heels mine carrying a vein of very rich ore, about 10 inches in width, principally sulphurets of silver.

Next in valuation is the Baker. An open cut on the vein 15 to 18 ft. in length, disclosed a vein of ore 18 to 20 inches in thickness. Carbonate of copper, sulphurets of silver, with a small percentage of galena, compared with the amount of copper, are present in the ore.

Near the Baker is the Moose. The vein of ore is very rich in silver. It is the only mine that is being worked the present winter. The Northern Star, a short distance below, promises well. East of the Northern Star is the Dwight.

A number of discoveries, some of them quite rich have been made on Mount Lincoln.

**CALIFORNIA GULCH.**—Cor. same: It has been estimated that since the discovery of gold in Colorado, California Gulch has produced over two and a half millions in gold dust.

There are at present below Granite on the Arkansas 40 or 50 men employed in



"rocking" dirt, that are making from \$2.50 to \$8 per day.

The Printer Boy, Pilot, Five-Twenty, American Flag, and Berry Tunnel, are the main objects of attention. In the Printer Boy a shaft has been sunk 100 ft. and a boundary shaft 78 ft. deep. Between the two shafts a level has been run 450 ft. over which is a slope of ground 60 ft., in depth. 145 cords of ore from this slope, treated at the Five-Twenty mill, gave an average yield of 18 ozs. per cord. At the time of my visit, the mill (one battery) was running on wall rock that yielded from 3 to 6 ozs., per cord. This winter the mining foreman, intends sinking the main shaft 100 ft., deeper, making it 240 ft., in depth, and then drift north 450 ft., to the boundary shaft, making a slope of ground 100 ft., in depth, and 450 ft., in length.

Two main houses have been built during the past season.

WARD same paper Dec. 15th: The Mohawk lode is leased to an English Co., and the development of the mine will be immediately commenced.

WORK is being resumed on the Ompjett lode in Mountain city. With the reduced rates of treating ores, the prospects are quite flattering.

### Idaho.

RICH QUARTZ.—Idaho World, Dec. 16th.—On Last Tuesday J. Good took 7 lbs. of quartz from his ledge at Granite creek, and after pounding it in a mortar, panned out \$1.75 which assayed gave at the rate of \$475.15 per ton.

ROCKY BAR.—Boise Statesman, Dec. 14th: The Red Warrior mill has shut down for the winter. The mill has been doing well in the latter clean ups made. The one before the last yielded \$50 per ton for the rock crushed. From Atlanta, the report is that Mr. Mattingly is starting up his mill with new pans, and will run all winter. Considerable ore will be taken out on the dump this winter in that region.

MINING RECORD.—Owyhee Avalanche, Dec. 9th: At the north discovery of the Oro Fino, several hundred tons of ore are piled up on the yard ready for transportation to the mill. They are taking out about 25 tons daily. Both the ore house and shutes are full of ore taken from the north end of the south discovery.

The Little Giant, about 50 ft. east of the Oro Fino, is being worked at 3 points, viz.: A crosscut run from the Oro Fino tunnel, sinking the main shaft and stopping in a tunnel driven in from the surface.

At the south end of the South Oro Fino Discovery we found on the yard over a hundred tons of fine looking ore. A drift is in from the surface 160 ft., with stopes following it up. At this point a shaft is down about 75 ft. on the ledge, which is from 2 to 3 ft. wide, both in shaft and drift.

In the Ida Elmore, the vein in both the 6th and 7th levels is improving. The Supt. informs us that he intends soon to commence sinking the main shaft in order to strike the rich body of ore lately discovered in the 8th level of the Golden Chariot, only 100 ft. below the bottom of the Elmore shaft.

In the Golden Chariot, so far as is yet known, the recent strikes in both the 5th and 8th levels are rich and extensive. Additional hands have been put to work, drifts have been started and the 7th level will immediately be connected. The depth of the 8th level is 690 ft.

### Montana.

BEEVILLE.—Cor. Helena Gazette, Dec 16th: We are on the southern fork of Clancy creek, about 5 miles west of Jefferson City and about 20 miles south from Helena. Our lodes are the Compromise, lying idle from causes unknown to the writer; next, is a discovery on the Gregory worked by Sanders & Co., who are working six men and have out about 60 tons of ore. The next is the Mineral Hill worked by Wood Parker & Co., who have 2 men sinking through a cap. They will commence on Monday to hoist ore. Next is the El Dorado. This mine has 5 men employed, and have out on their dump about 100 tons of fine ore. Next is the Self Supporter, owned by Halford & Co. who have a shaft down 50 ft. with some Galena in sight but not in paying quantities—prospect flattering. Next is the Poor Man, with a shaft down 25 ft. It prospects good for a fine lode. The last is the Minnesota. There are 5 men at work on this lode, taking out ore. There have been several discoveries made recently, some very promising.

PHILLIPSBURG.—Deer Lodge Independent Dec. 9th: Mr. Cameron is pushing matters at his mine. He has struck a mass of iron rock in his drift that renders progress very slow. It is believed to be the casing of

the ledge. A number of men are engaged in taking ore from the upper level in the mine and have about 100 tons of fine ore out.

A number of miners are engaged on Upper Ophir in drifting out pay dirt.

### Utah.

BULLION.—S. L. Tribune, Dec. 16th: W. F. & Co. forwarded yesterday to New York 16 bars of fine bullion from the Raymond & Ely Works, Pioche, worth \$50,373.32. On the 20th they shipped to N. Y. 7 bars, worth \$7,853.21, from the Meadow Valley mine.

PROMISING.—The Vespasian has widened to 2 ft. of rich ore, which gives an average assay of \$200 to the ton.

WEST TINTIC.—The Pacific M. Co. are enjoying fine prospects. This Co. has 7 lodes, varying in width from 3 to 7 ft., and the ore assaying from \$50 to \$200.

Work is being pushed on most of these claims, and the prospects are that they will develop into good mines.

COLUMBIA DIST.—There will be 5 or 6 Cos. at work on as many different ledges all winter, and by the opening of spring will determine the true merits of this camp. All the ledges that have been opened are looking exceedingly well.

The Gold Eagle Co. will commence shipping ore in a few days to Ophir city.

The Washington Co. have resumed work again upon their mine with flattering prospects. The ledge is 5 ft. wide, with pay ore from the surface and improving as they go down upon it. Prospecting is suspended for the winter.

OPHIR AND MR. LION MINE.—From the original discovery hole I could trace the vein by the rich chloride ore, that is left for that purpose, to the Webster shaft, some 250 ft. On descending this shaft 70 ft., I came to the first level, where I found a well defined ledge of first class ore, at least 6 ft. thick. The Webster shaft continues down to a depth of 100 ft. and is run straight, regardless of the pitches and angles of the vein. I next visited the Mormon Belle shaft; on descending about 40 ft. I entered a drift running northerly, which I followed to the Blue Wing shaft, No. 1; and thence to Blue Wing shaft No. 2. "On my return I examined the ore vein, and I am sure that it is a true fissure vein, that contains very rich ore.

The drift mentioned, connecting the several shafts, was run on the course, and following the vein, to trace out as many locators. The Blue Wing shaft, No. 2, is at a depth of 80 ft., showing a good vein of yellow chloride ore; at present this shaft is being used as the main channel for perpendicular development. Sinking is rapidly being pushed forward, following the vein. The lumps accumulated from this shaft show some exceedingly rich ore.

In the Silver Exchange, just below the above described mine, I found a tunnel 40 ft. long, tapping this mine at right angles. A shaft at the end of the tunnel following the rim down to a depth of 60 ft., and a drift 30 ft. each way on the course of the vein, showing a crevice of ore matter from three to four ft. wide, that will sample from \$300 to \$500. There are about 50 tons of high grade ore on the dumps awaiting shipment.

On my arrival in Ophir, I found much excitement over the development of the Chance (Swansea) mine. It has opened out to 6 ft. of solid ore, and assays very rich.

Jacobs & Co. and the Omaha Co. of Dry Cañon, are working large forces of men. Simon & Co., of East Cañon, are pushing their mining operations vigorously. The Walker furnace is progressing finely.

DRY CANON.—Cor. S. L. Review, Dec. 15th: In the Balsam mine on the west side of Treasure Hill, about 100 or 125 yards from the main road, a tunnel has been run about 30 ft., showing a vein of galena and carbonate the width of the shaft, and very fine smelting ore. The Co. are building a chute from the mine to the road, a distance of about 400 ft. Croppings on the surface can be traced for a long distance east and west. They have located a tunnel site on the same ledge, called the Nahoh, with the intention of tapping the main ledge 100 ft. below.

On Shoo-Fly Hill, the owners of the Iris have erected over the entrance of the incline a substantial ore-house, with a track passing through it into the mine. The depth of the mine is 130 ft., and a drift of about 50 ft., showing an immense body of milling ore.

The Alabama mine is about 500 ft. south of the Iris; it has a shaft of 40 ft. in depth, showing a fine body of milling ore. The Dry Pine is about 600 ft. southeast of the Alabama. The ore extracted from this mine, is of the highest grade galena, assaying, on an average, \$100 to \$125.

### San Francisco Mining Stock Market.

THURSDAY EVE., Dec. 28, 1871.

Stocks have been active during the week. No meeting of the Board was held on Christmas. The following telegram was received Dec. 22d from the Superintendent of the North Star Mine, Grass Valley: "Shipped \$9,400. Everything all right; running smoothly."

The aggregated sales of the Stock Board from Dec. 14th to Dec. 20th were \$2,390,962.

For the past week, only 174 tons of ore were received from the Chollar-Potosi Mine, assaying \$36.40 per ton. Up to the 26th \$75,000 had been received on December account, from the Meadow Valley Mine. The Raymond & Ely was shut down 36 hours during the week for repairs to boiler. Last week 700 tons of ore were taken from the Hale & Norcross Mine, and 1,000 tons from the Savage, the latter assaying \$27.20 per ton.

At the annual meeting of the stockholders of the Ophir Silver Mining Co., held Dec. 20th, the following Trustees were elected: M. Castle, L. L. Robinson, Judah Baker, Jr., A. Block, F. Logan, R. Hochkoffer and Geo. Shultz. Subsequently the Board organized and elected the following officers: Michael Castle, President; L. L. Robinson, Vice-President; Joseph Marks, Secretary; Philip Deidesheimer, Superintendent; Bank of California, Treasurer. During the year ending Dec. 20th, the total receipts of the Company amounted to \$188,046.34; total disbursements, \$175,142; leaving cash on hand, \$2,904.26.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

Dec. 21, Highest.	Lowest.	Dec. 28, Adv.	Decl.
Alpha.....	13	—	—
Amador.....	255	265	—
Belcher.....	445	430	12 1/2
Buckeye.....	445	445	—
Chollar-Potosi.....	34	35 1/2	33 1/2
Caledonia.....	14 1/2	15	13 1/2
Cons. Virginia.....	17 1/2	15	15
Crown Point.....	420	475	410
Danely.....	7 1/2	7 1/2	7 1/2
Eureka Cons.....	23	24 1/2	23 1/2
Eureka.....	24 1/2	24 1/2	24 1/2
Golden Chariot.....	24 1/2	24 1/2	24 1/2
Gould & Curry.....	119	119	108 1/2
Hale & Norcross.....	130	130	127 1/2
Imperial.....	43	43	43
Ida Elmore.....	13	21	19 1/2
Kentuck.....	165	165	145
Mammoth.....	15	15	15
Meadow Valley.....	28 1/2	28 1/2	25
Ophir.....	35	35	32
Orig. Hid. Treas.....	9	9	8
Overman.....	30	30	30
Pioche.....	10 1/2	10 1/2	10 1/2
Raymond & Ely.....	76	81	71 1/2
Savage.....	47 1/2	49	45 1/2
Wash. & Crocker.....	5 1/2	5 1/2	5 1/2
Yellow Jacket.....	62	62	60
St. Patrick.....	45	45	40
Seg. Belcher.....	37	37	33

### Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons.....	—	285	Ida Elmore.....	18 1/2	19
Amador.....	—	285	Imperial.....	—	—
Belcher.....	440	445	Kentuck.....	150	165
Chollar Cons.....	33 1/2	34	Meadow Valley.....	23 1/2	24
Crown Point.....	410	415	Ophir.....	31 1/2	32
Danely.....	—	—	Orig. Hid. Treas.....	7 1/2	8
Eureka Cons.....	22 1/2	23	Overman.....	29 1/2	30
Eureka.....	24	24 1/2	Savage.....	46	46
Golden Chariot.....	23 1/2	24	Raymond & Ely.....	79	80
Gould & Curry.....	112	112	Sierra Nevada.....	—	—
Hale & Norcross.....	130	133	Yellow Jacket.....	—	—

### Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY	DAY
Alhambra Hill M. Co., Nev., Dec. 9, 50c. Jan. 13—Feb. 5	DELINQUENT.	OF SALE.
Buckeye G. & M. Co., Nev., Nov. 10, \$1. Dec. 14—Jan. 2		
Con. Vir., Nev., Nov. 2, \$1.50. Dec. 13—Jan. 5		
Danely, Lyon Co., Nev., Nov. 27, \$1. Dec. 30—Jan. 18		
Eagle Quicksilver, Cal., Oct. 30, \$40. Jan. 6—Jan. 8		
El Dorado M. Co., Cal., Dec. 7, 25c. Jan. 16—Feb. 6		
Ely Consolidated, Nev., Nov. 27, 50c. Jan. 8—Jan. 30		
Emerald Hill M. Co., S. L. Co., U., Nov. 3, 10c. Dec. 11—Jan. 2		
Golden Chariot, Idaho, Nov. 15, \$3. Dec. 23—Jan. 15		
General Lee M. Co., W. P., Dec. 5, 10c. Jan. 30—Feb. 15		
Hale & Norcross, Nev., Dec. 14, 35c. Jan. 18—Feb. 7		
Jackson M. Co., Eureka, Dec. 8, 25c. Jan. 10—Jan. 29		
Kincaid Flat M. Co., Dec. 11, \$2.50. Jan. 17—Feb. 7		
Knickerbocker M. Co., Storey Co., N., Dec. 4—50c Jan. 7, 26		
Lillian Hall M. Co., Ely Dist., Nov. 18, 60c. Dec. 27, Jan. 23		
Magnolia, Eureka Dist., Nov. 27, 25c. Dec. 29—Jan. 19		
Mahogany M. Co., Idaho, Nov. 11, \$2. Dec. 13—Jan. 10		
Mammoth, Wyo., Dec. 13, 10c. Jan. 18—Feb. 8		
Meadow Valley, Ely Dist., Nov. 27, 50c. Jan. 9—Jan. 31		
Minna Rica M. Co., Cal., Nov. 15, 20c. Dec. 18—Jan. 8		
Nevada Cons. Borax Co., Nov. 29, 5c. Jan. 10—Jan. 29		
Ophir S. M. Co., Nev., Dec. 20, 25c. Jan. 24—Feb. 14		
Orig. Hid. Treas., W. P., Nov. 24, \$1.50. Jan. 3—Jan. 25		
Overman, Nev., Nov. 25, 50c. Dec. 22—Jan. 16		
Peter Walter, Placer Co., Cal., Nov. 14, 75c. Dec. 20—Jan. 9		
Phoenix, Lander Co., Nev., Nov. 21, 50c. Dec. 27—Jan. 16		
Pioche W. Ex. Ely Dist., Nov. 23, \$1.50. Jan. 4—Jan. 27		
Pochontas G. M. Co., Cal., Nov. 29, 55c. Jan. 6—Jan. 30		
Quail Hill M. & W. Co., Dec. 19, 35c. Jan. 23—Feb. 13		
Reform M. Co., Cal., Oct. 28, \$20. Dec. 2—Feb. 20		
Silver Wyo. White Pine, Dec. 14, 30c. Jan. 25—Feb. 23		
Spring Mount Co., Ely Dist., Nov. 27, 50c. Jan. 7—Jan. 29		
Starlight G. & S. M. Co., Nov. 1, 25c. Dec. 11—Jan. 2		
South Chariot M. Co., Owyhee Co., Id., Nov. 7, 81c. Dec. 18, Jan. 8		
Tecumseh G. S. & C. Co., Dec. 5, \$3. Jan. 9—Jan. 30		
Tallulah M. Co., Humboldt Co., Nev., Nov. 29—Jan. 31, 30		
Washington & Crocker, Nev., Nov. 27, 50c. Jan. 5—Feb. 1		

### MEETINGS TO BE HELD.

Black Diamond Coal M. Co.....	Payable Sept. 15
Chollar Potosi, \$1.....	Payable Dec. 11
Eureka Cons., \$1.....	Payable Oct. 20
Keystone M. Co., \$2.....	Payable Sept. 16
Meadow Valley, \$1.50.....	Payable Dec. 15
Natoma.....	Payable Oct. 5
Pioche S. M. Co., \$1.....	Payable Dec. 15
Raymond & Ely, \$5.....	Payable Dec. 18
Sucon Mill and M. Co., 50c.....	Payable Oct. 16
Yule Gravel M. Co., 50c.....	Payable Dec. 5

—Advertised in this journal.

### San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

#### PRICES FOR INVOICES

Shipping prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, December 28, 1871	
Iron.—Duty: Pig, \$7 per ton; Railroad, 9c per 100 lbs; Bar, 10 1/2c per lb; Sheet, polished, 3c 8c; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb; Scotch and English Pig Iron, \$4 ton.....	45 00
White Pig, \$4 ton.....	45 00
Refined Bar, had assortment, \$4 D.....	04 00
Refined Bar, good assortment, \$4 D.....	05 00
Boiler, No. 1 to 4.....	05 00
Plate, No. 5 to 8.....	05 00
Sheet, No. 10 to 13.....	05 00
Sheet, No. 14 to 20.....	06 00
Sheet, No. 24 to 27.....	06 00
Horse Shoes.....	7 50
Nail Rod.....	9 00
Norway Iron.....	7 1/2
Rolled Iron.....	5 00
Other Irons for Blacksmiths, Miners, etc., 3 @ Bar, 2 1/2c @ D.....	—
Copper.—Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 2 1/2c @ D.....	—
Sheathing, \$4 D.....	24 00
Sheathing, Yellow.....	24 00
Sheathing, Old Yellow.....	11 00
Composition Nails.....	24 00
Composition Belts.....	24 00
TIN PLATE.—Duty: 25 per cent. ad valorem.	—
Plates, Charcoal, 1X per box.....	12 00
Plates, 1X Charcoal.....	10 00
Roofing Plates.....	11 00
Banca Tin, Slabs, \$4 D.....	—
STEELE.—English Cast, \$4 D.....	16 00
Flat Bar.....	17 00
Plough Points.....	3 75
Russia (for mouldboards).....	12 1/2
QUICKSILVER.—\$4 D.....	—
LEAD.—Pig, \$4 D.....	—
Sheet.....	08 00
Pipe.....	08 00
Bar.....	08 00
ZINC.—Sheets, \$4 D.....	10 00
BORAX.—Refined.....	25 00
Borax, crude.....	5 00

### New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

GREENE MINING Co.—Capital stock \$600,000, 10,000 shares. Trustees: W. G. Greene, A. C. Peachy, F. Peach, W. L. Higgins, and W. Bryan.

SILVER PEAK MINING Co.—Capital stock \$2,000,000, in 20,000 shares. Trustees: J. D. Fry, J. M. Martin, W. Chine, W. H. Sears and L. G. Hoyt.

HOMEOPATHIC HOSPITAL AND COLLEGE.—J. Chnsing, F. Geary, J. A. A. Weston, S. Beakley, and J. A. Eckel.

MUTUAL PROTECT ASSOCIATION OF SAN FRANCISCO.—Trustees: T. Anderson, J. C. Mitchell, H. W. Jones, T. Housworth, R. Irwin, G. H. Mitchell, J. C. A. Hill, J. L. Fields, W. Bank and S. S. Pomroy.

The following have filed certificates in the Secretary of State's office, Sacramento:

NORTH PACIFIC RAILROAD Co.—S. McMillan, Shafter, Pres; H. B. Platt, Vice-Pres; W. H. Tilghast, Treas; G. W. Morgan, Sec; J. T. Boyd, Attorney. Directors: W. H. Tilghast, J. McMillan, H. B. Platt, A. D. Moore, J. T. Boyd, W. H. Ladd, T. Curtis, S. R. Throckmorton, C. Webb Howard, J. P. Moore, L. Gastle, S. P. Taylor and W. F. Russell. Capital stock \$1,500,000.

SACRAMENTO SILVER MINING Co.—Capital stock, \$500,000, in 5,000 shares. Trustees: W. F. Edgar, A. J. Johnson, H. M. Smith, J. C. Udall and J. G. Howard.

"DEVIL'S ELBOW TUNNEL, FLUME AND MINING Co."—Capital stock, \$160,000, in 1,600 shares. Trustees: J. F. Woods, J. R. McVay, W. Fern, J. L. Denison and E. S. Denison.

SACRAMENTO LIBRARY ASSOCIATION.—Trustees: T. Baker, N. Walters, W. H. Porter, J. W. Pew, C. A. Grow, F. H. McCormick, F. C. Ross, S. C. Seville and F. Miller.

OPHIR COPPER SILVER AND GOLD MINING Co., have filed a certificate of the increase of the capital stock from \$370,000 to \$1,000,000.

REVENUE SILVER MINING Co. Capital stock, \$1,000,000 in 10,000 shares. Trustees: S. B. Edwards, J. G. Edwards, and H. McPherson.

IMPROVED STILL Co. Capital stock, \$1,000,000, in 10,000 shares. Trustees: G. Johnson, W. Neil, and J. Gavley.

EQUITABLE TUNNEL AND MINING Co. Capital stock, \$1,000,000, in 40,000 shares. Trustees: W. Fenton, J. C. Parks, E. Hutchinson, W. G. Wayman, C. S. Healy, J. P. Nesmith, and G. T. Emery.

SCANDINAVIAN HALL ASSOCIATION. Capital stock, \$75,000, in 6,250 shares. Trustees: G. O'Hara Taaffe, O. W. King, T. Thomsen, J. Nelson, H. L. Lendstrom, W. Lundberg, E. A. Brandt, J. G. Nelson and C. Christiansen.

STUMT MINING Co. Capital stock, \$300,000, in 3,000 shares. Trustees: H. McAllister, S. Hermann and J. A. Osgood.

GULF OF CALIFORNIA COMMERCIAL Co. Capital stock, \$600,000, in 6,000 shares. Trustees: A. Kyle Macsorley, J. Schreier, W. G. Badger, W. Mocker and W. S. Brown.

The following have filed articles of incorporation in the Secretary of States' office, Sacramento:

BOCA WOOD AND LUMBERING Co. Capital stock \$75,000, in shares of \$100 each. Trustees: L. E. Doane, W. E. Terry and S. B. Elwell.

THE STORM, which commenced a week ago, last Sunday night, has continued, with slight interruptions, to the present time, Thursday afternoon. The amount of fall in this city up to this time, has been over 14 inches for the present storm, and about 18 1/2 for the season.

BEEF PACKING.—Latterly this business has been transferred to the State of Kansas in the neighborhood of vast plains of pasture lying within and near the borders of that State.



### IMPORTANT PATENT DECISION.

We give below the decision in full of the Examiners-in-Chief in the United States Patent Office, on an interference between John A. T. Overend and William Wallace Dunn, both of San Francisco, Cal., both of whom claim to be the inventor of an Improved Type-casting, Breaking, Rubbing and Setting Machine, for which both have made application for Letters Patent. This case has attracted considerable attention from the mechanics of San Francisco, on account of the peculiar nature of the conflicting claims. The decision given is a plain, fair, and, in our opinion, unbiased statement of the facts as proven and given to the Patent Office.

JOHN A. T. OVEREND  
vs.  
WM. A. DUNN.

Type Machine.

Dunn filed application May 17, 1870.  
Overend filed application Oct. 5, 1870.  
Notwithstanding this pending application, a patent was issued to Dunn, January 24, 1871.

On the 1st of February Overend's second claim was rejected on reference to Dunn's patent, "in which, substantially, the same devices are shown, but not claimed."

An interference was then demanded and granted.

The second claim of Overend is as follows: "The sliding plate, N, arranged as described, so as to carry the type between the rubbers, P, P, in combination with the carrier I, clamp L and table K, constructed and operated as described."

Overend made the preliminary statement required by the rules.

Dunn neglected to do so, and relies therefore upon the date of his application, May 17, 1871, as that of his invention.

The statement of Overend shows him to have been the inventor of what he sets forth in his second claim long before that time. His evidence substantiates and establishes the same thing.

It must be borne in mind that he does not claim all that is shown and claimed by Dunn, but only what appears in his own device.

Dunn's machine appears very complicated, and with very many parts and arrangements not in Overend's. Overend's machine, on the contrary, is very simple.

The question to be decided, therefore, is, whether he invented what he thus claims before the 17th of May, 1870?

Dunn has introduced testimony to show that he is the sole inventor of the devices claimed, and that Overend derived them wholly from him, and is no inventor. But he depends almost wholly on his own unsupported averments to sustain this. He claims that in the fore part of 1869 he applied to Overend to assist him with funds to get up and bring out the type machine, and offered him an interest; and that Overend said it would be time enough to settle the matter of interest after the success of the invention had been established, but went on and procured patterns and castings for frame and bed-plate and furnace, etc., for the machine, which castings were taken to one Garcia to be set up and fitted, etc.; that sometime in March he (Dunn) took the partly completed machine from Garcia's to his own house, where he worked on it for a time, and then, in the summer of 1869, removed it to his shop in the Vulcan Foundry, where he continued to work upon it until he completed it, in February, 1870.

But Dunn on his cross-examination admits that Overend's name appeared on the patterns and frame of the machine, and his initial also on other parts, but "merely as a complement;" and that Overend paid all the bills and expenses, amounting to \$400, except a trifling express matter, but never paid him anything for his services. He denies that Overend ever made any valuable suggestions to him, or set up any claims to the invention until they had a falling out about the time the invention was completed, when he says Overend made application to a patent attorney to caveat or patent it; that he ascertained this fact about the middle of March, 1870, and he went immediately forward to make application himself.

Several witnesses engaged about the Vulcan Foundry, and who saw Dunn at work on the machine after it came there, give their opinions that he was the inventor from the fact that he made so many changes and alterations, and was apparently working without aid or advice from any one.

One West goes beyond all the others,

even Dunn himself, and swears to seeing models of the type machine in 1866, and describes a nearly completed machine; and that Dunn concluded, in the fall of that year, to adopt the armed spider to receive and place the type on the rubber, which is a portion of the device now in controversy. He also says that he saw Dunn making a large machine at the Vulcan Foundry in 1868, when no machine was commenced until 1869. But little dependence can therefore be put on this witness.

On the other hand, Overend claims that he had fully conceived of the devices in controversy, and designed introducing them into a machine, and disclosed his designs to Dunn and others; that he is an old type-founder, and had devised some of the parts in dispute many years ago. That he got up patterns and castings on his own motion, and at his own cost and expense, to carry out his invention, and employed Garcia to work upon it. That Dunn was also in his employ in a printing office. That when Garcia had partially completed the machine, Dunn represented that there was danger of his appropriating the invention, and had, in fact, made propositions to go and manufacture it as he, Overend, had no patent, and therefore argued that it should be taken from Garcia and entrusted to him, (Dunn), who would take it to his house, and there complete it, in consideration of Overend's service on another machine which Dunn was getting up. That the partially completed machine was thereupon taken from Garcia, and turned over to Dunn. That he fully described his improvements to Dunn, and from time to time gave directions and instructions; and that the bills were all paid by him, amounting to \$800, besides an additional allowance made for Dunn's services. That when the machine was finished, Dunn told him to take it away, but when he sent for it, refused to let it go.

What the nature of the quarrel was between the parties at this time does not appear. Now Overend's testimony is, itself, sufficient to show that he was an inventor of the things claimed before Dunn made application, whatever Dunn may have been, or whatever he may have done before that time.

But the evidence of Garcia is perfectly conclusive on the subject. He shows that the whole thing was fully disclosed and described by Overend, and that he could have gone on and completed the machine under his instructions, had it not been taken away.

Other witnesses show most satisfactorily that Overend had devised the improvements claimed, and employed Garcia and Dunn as simple mechanics to put them in form.

There were evidently many valuable mechanical changes and arrangements made by Dunn, but we are satisfied that he received all of the important ideas from Overend, and that he would never have attempted to bring out the machine had it not been started by Overend.

It is perfectly incredible that Overend should have advanced all the money and given so much of his time and attention to bring out this invention unless he believed that he had some right in it beyond the mere verbal promise of Dunn that he should have an interest. It is incredible that his name should have been put on the machine merely as a compliment.

The whole history of this case, with its surroundings, show at least that Overend supposed that he was the inventor and that Garcia and Dunn were only mechanics employed to work out his invention. The evidence in the case also satisfies our minds that Garcia so understood, and so continued to understand; and that Dunn acted on such understanding up to the time of the quarrel after the completion of the machine.

We must, therefore, reverse the decision of the Examiner of Interferences and award priority of invention to Overend.

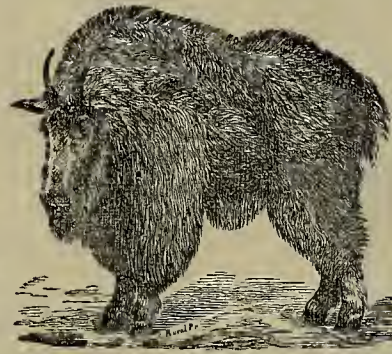
RUFUS L. B. CLARKE,  
S. H. HODGES,  
J. M. THATCHER,  
Examiners-in-Chief.

**THE WONDERS OF PHOTOGRAPHY.**—The exigencies of the Parisian siege have brought prominently before us the use of micro-photography. A writer in the British *Journal of Photography* predicts that we will soon have our daily paper handed to us the size of a postage stamp, and carry our favorite poets in our vest buttons. We will see "a new edition of Macaulay's complete in three shirt-studs," or "the city edition of Dickens" complete in two sleeve-buttons. Every one will then carry a microscope as we do now a penknife.

### THE MOUNTAIN GOAT.

We give herewith a pictorial representation of what is generally known, in the mountains to the east of the Sierra Nevada, as the "Mountain Goat," although it is sometimes called the Ibex; but the photograph from which our engraving has been prepared differs so widely in appearance from the Mountain Goat—*Aploderus Montanus*—as figured in *Zell's Encyclopedia*, that we are inclined to believe that the animal here shown is a different variety.

The animal here represented was captured by Messrs. Palmer & Barker, of Deer Lodge, Montana. The photograph was procured by our agent. Judging from the picture of the animal, which is a faithful copy from the photograph, he must be a fierce looking old fellow. Indeed, he is said to be the largest of the species ever taken alive. He stands three feet five inches high, and after three weeks of captivity, during which he was left six



days, at one time, without food, he weighed 250 pounds. His weight when captured must have exceeded 300 pounds.

The animal made a gallant fight with the dogs, and severely wounded one of them, but was finally lassoed. The wool of the Mountain Goat is four or five inches in length, perfectly white, and of a very fine, silky texture; but is pronounced by our wool manufacturers unfit for their purposes.

The manner of the pursuit and capture of these animals is described by the *Deer Lodge Independent* as follows: "They are shy, fleet, and leap from crag to crag sure-footed and fearlessly; but they grow tired and become combative by and by and so are caught in this wise: The bounds start and follow them, and for the time the race is to the swift. But perseverance conquers. Chased for miles they come to bay upon some cliff where the dogs can only come at them one way. While thus engaged the hunters circle off, climb the rocks above them and dropping a lasso dexterously, down it falls around the neck of the animal and strong arms hoist him to the realms above. This method of capturing seems hardly credible, and may remind some people of the story in McGuffey's readers of the Natural Bridge adventure, but its just as true as anything. Some of the captives are young and are becoming quite domesticated already."

### Washing Horses' Legs.

The use of water in washing horses' legs is quite too often very much abused. Without care, nothing produces more inconvenience. In many places the blessings of pure water have been extolled and received as a cure almost for everything, and, acting upon the belief, the converts imagine that they cannot have too much of a good thing. Results are, however, against the supposition. The evil consequences of an improper washing of horses' legs are cracked heels, swelled legs, greasy heels, etc., all of which may be avoided in ninety-five cases out of a hundred.

In many stables visited by the writer the horses, when returning from work, whether cold or warm, tired or hungry, are compelled to stand some minutes, while each leg, almost to the middle of the body, is either washed with very dirty water, or drenched with very cold water from a hose. On many occasions horses have to be thrown off work, in consequence of internal disease arising from such practice. Carriage and hack-horses suffer much from cracked heels, while their breed defends them, frequently, from grease. All this comes from the treatment to which they are subjected.

To the mere washing of horses' legs, if conducted properly, no one can offer objection. In wet, dirty weather, when the hair is matted with mud, no animal can rest comfortably with such an accumulation about him. If allowed

to remain, the sand and grit is moved during exercise to the wrinkles of the skin about the joints, and the parts are chafed, soon becoming raw, and presenting obstinate sores. By all means, let the filth be removed as quickly as possible, using clean water from a bucket. A good sponge and brush, with a small quantity of soap, will also be required.

Next press out the superfluous water and briskly rub with coarse towels, kept for the purpose; and put loosely a bandage upon each leg, as high as the parts have been washed, which should scarcely ever be above the knees or hocks. This process will very certainly limit the number of cases of cracked heels, grease, etc., all of which occur from the amount of cooing to which these parts are exposed when wet.

We frequently hear, in stables, the directions given to "be sure and rub the legs dry." Whoever gives such instructions cannot be aware of the almost impossibility of that which they require, unless men and horses are entirely deprived of rest. The easiest and most economical method is the use of flannel or linen bandages. By their use the legs dry rapidly through the means of natural heat, and in this way the groom will generally be enabled to remove them, and rub down the legs before leaving for the night.

### Agassiz's Expedition.

In speaking of the expedition of Professor Agassiz to the Southern Ocean, the *Engineering and Mining Journal* says:—Among the questions to be determined by this expedition are the temperature and percentage of salt which the sea contains at different depths.

The latter question would be difficult to solve on shipboard by any analytical process in use, and therefore recourse has been had to an exceedingly simple and ingenious method. The density of water increases, within certain limits, in exact proportion to the amount of salt which it contains, and therefore accurate determinations of its specific gravity would show how much salt it contains. Accurate results are, however, not so easily had, even with very delicate hydrometers, on an unsteady vessel, and hence it is proposed to ascertain the density of the water by means of its varying index of refraction. A hollow glass prism is so mounted as to form an apparatus that can be held in the hand like a sextant, and by which the angle of refraction can be measured. If this prism be filled with sea-water of different densities, a ray of light passing through it will be refracted at different angles. The determination of this angle will furnish a means of determining the amount of salt contained in the water.

The temperature at different depths will be determined by self-registering thermometers, and it is, we believe, proposed to employ also an apparatus invented by Mr. Siemens for determining high temperatures. It is based on the principle that the resistance that a galvanic current encounters in passing through a coil of wire, increases with the temperature of the wire, other conditions being the same.

An apparatus has been constructed by means of which it is hoped that the depth to which the light of the sun penetrates beneath the surface of the ocean may be determined. By means of clock-work, a photographic plate is exposed for a given time, after having been sunk to any desired depth, and again covered up. It can then be drawn up to the surface and examined, in the usual way, in order to discover whether it has been at all exposed to light, and if so, the relative intensity of the light. Another apparatus has been constructed so that the clock-work will run evenly and well in water or glycerine, with which the containing box will be filled, in order to resist extreme pressure at very great depths.

### Important Decision.

Farmers, especially, will be interested in the following decision not long since decided in the Supreme Court, in reference to mortgages on growing crops: Williston had a mortgage on a crop of wheat grown by McGrane, who cut the wheat about the 20th July, and on the 10th August sold it while in stacks and shocks in the field to Goodyear. Five days afterward, Williston came along and took possession of the wheat under his mortgage. Goodyear brought suit and recovered judgment, and the Supreme Court affirmed the judgment on appeal. The moral is, that if you take a mortgage on a growing crop, you must not wait for three weeks after harvest to take possession, but you must be on hand without delay. The record of the mortgage is protection before the grain is cut, but, after cutting, the general rule applies that the mortgagee of personal property is not safe unless he is in possession.



## USEFUL INFORMATION.

## Taking Off Hides.

Being a worker in the leather manufacture, I have constantly under my notice the awkward manner in which the farming community take off the hides of animals of their own slaughter. The hind leg, for instance, being slit up along the inner, or, perhaps, inner side, so as to leave the hock of the hide in the form of a scull cap. As upon being brought into work, every part must be made to lie flat, this portion has to be opened by cutting unsightly strips, which materially impair its usefulness.

The following directions may assist the novice in performing the operation:

We will suppose the animal dead and placed on its back; the operator, by thrusting his knife point foremost and edge up, makes a slit the entire length of the carcass, from the chin over the center of the breast in the line of the navel to the vent. Let him now stand by its side, with his face looking the way the head lies, and taking the forefoot in his left hand, run the point of his knife in the line of the cleft of the foot and cap of the knee, up the front of the leg and into the central slit of the bosom. For the hind leg, having reversed his position, let the slit be made in the line of the heel, over the center of the cap of the hock, down the back of the ham into the central slit. In this way the hides when spread out will have a square form without long projections, and consequent deep indentations of its outline.—*Cor. Canada Farmer.*

**CURIOSITIES OF CHEMICAL SCIENCE.**—An atom of water sometimes makes a most extraordinary difference in the properties of bodies. Thus, to give some more familiar illustration, the addition of an atom of water to starch converts it into sugar; the subtraction of an atom of water from alcohol converts it into ether. But perhaps the most curious change produced by the removal of an atom of water from a body has been recently discovered by Dr. Matthieson of London. Morphia, the well-known active principle of opium, is commonly used to allay vomiting, and very often performs the duty very effectually. But when morphia has been heated with hydrochloric acid, and an atom of water has been thereby removed, it is changed into the most active emetic known. It is not necessary to swallow it to produce the effect; a very small quantity introduced under the skin, or even, it seems, split upon the hand, is quite sufficient to produce vomiting, which, however, soon subsides, and leaves no nausea afterwards. The new body introduced into medicine has been named by its discoverer Ememorphia.

**RUSTING OF IRON.**—Dr. Calvert has communicated some very useful information on the rusting of iron. Rust is mainly sesquioxide of iron, and it has always been supposed that the active agents in producing it are moisture and oxygen. It seems, however, from Dr. Calvert's experiments that carbonic acid must be associated with these to produce any considerable amount of oxidation. In dry oxygen iron does not rust at all; in moist oxygen but little and seldom; but in a mixture of moist carbonic acid and oxygen, iron and steel rust very rapidly. In like manner a piece of bright iron placed in water saturated with oxygen rusts very little; but if carbonic acid is present as well, oxidation goes on so fast that a dark precipitate is produced in a short time. Curiously enough, bright iron placed in a solution of caustic or carbonated alkali does not rust at all. These facts show that the points to be attended to in the preservation of iron from rust are exclusion of carbonic acid and moisture, two indications which may be very easily fulfilled.

The relative value of gold and silver in the days of the patriarch Abraham was 1 to 8; at the period B. C. 1000, it was 1 to 12; B. C. 500, it was 1 to 13; at the commencement of the Christian Era, it was 1 to 9; A. D. 500, it was 1 to 18; A. D. 1100, it was 1 to 8; A. D. 1400, it was 1 to 11; A. D. 1613, it was 1 to 15½; which latter ratio, with but slight variation, it has maintained to the present day.

**IRON SPONGE,** which is coming into important use as a disinfectant and powerful absorbent of noxious gases, also a filtering agent superior even, it is said, to animal charcoal, is manufactured by calcining a mixture of iron ore and charcoal finely pulverized.

## Useful Hints.

Why are some things of one color and some another? As every ray of light is composed of all the colors of the rainbow, some things reflect one of these colors and some another.

Why do some things reflect one color and some another? Because the surface is differently constructed, both physically and chemically, and therefore some things reflect one ray, some two rays and some none.

Why is a rose red? Because the surface of a rose absorbs the blue and yellow rays of light, and reflects only the red ones.

Why is a violet blue? Because the surface of the violet absorbs the red and yellow rays of the sun and reflects the blue only.

Why are some things black? Because they absorb all the rays of the light and reflect none.

Why are some things white? Because they absorb none of the rays of light, but reflect them all.

What is the cause of the wind? The sun heats the earth, the earth heats the air resting upon it; as the warm air ascends the void is filled up with a rush of cold air to the place, and this rush of air we call wind.

Why does the black skin of the negro never scorch or blister, with the sun? Because the black color absorbs the heat, conveys it below the surface of the skin, and converts it into sensible heat and perspiration.

Why does a drop of water sometimes roll along a piece of hot iron without leaving the least trace?—Because (when the iron is very hot indeed) the bottom of the drop is turned into vapor, which buoys the drop up, without allowing it to touch the iron. This is what is called the spheroidal condition of water.

Why does a laundress put a little saliva on a flat-iron, to know if it be hot enough? Because, when the saliva sticks to the hox, and is evaporated, she knows it is not sufficiently hot; but when it runs along the iron, it is.

Why is the flat-iron hotter, if the saliva runs along it, than if it adheres till it is evaporated?—Because when the saliva runs along the iron, the heat is sufficient to convert the bottom of the drop into vapor; but if the saliva will not roll, the iron is not sufficiently hot to convert the bottom of the drop into vapor.

**EAU DE COLOGNE.**—Competent authorities declare that the excellence of this perfume almost entirely depends upon the purity of the spirit employed as its basis. Spirits made from malt and other materials not vinous will never produce Eau de Cologne of a high character, owing, it is believed, amongst other causes, to the odor of fusil oil in the first and to cyanic ether in the second. Neroli, without which neither genuine Eau de Cologne nor a good imitation of it can be made, is an essence obtained from orange blossoms (the bitter species, *Citrus bigaradia*), and hundreds of tons of flowers are plucked and consumed for the purpose.

**TANNING COTTON.**—*Cosmos* speaks of treating cotton fabrics with a solution of tanning to give them strength and resistance to moisture. Nature thinks the change produced cannot be great. In a subsequent number the last named journal gives a communication from a Northumberland tanner, who says that in that neighborhood the fishermen have for many years been in the habit of tanning their sails and nets with oak bark or cathechu. "Not only does it render them more durable, but in some cases where wet nets have heated and become tender, their toughness has been restored by tanning."

**DIAMOND FIELDS OF AFRICA.**—The official report first published in England declares the invoice of diamonds from South Africa to be 141 stones, worth \$37,000, for 1869; and 5,661 stones, worth \$625,000, for 1870. Besides this, there should be added some valuable gems found, as the Star of South Africa and a few others, worth \$75,000; total for 1870, 700,000. The dealers in diamonds in London and Amsterdam, however, declare that most of all the stones thus far found in South Africa are of inferior quality and do not compare with those obtained from other sources.

**J. H. HALLENBECK** suggests for photographers the use of thin sheet rubber instead of yellow glass for the sensitizing room. Light admitted through this rubber will not act on the sensitive plates.

**THE TEA TRADE.**—During the past year 15,000,000 pounds of tea were shipped East by rail from San Francisco.

## GOOD HEALTH.

## The Human Ear.

## A Minute Description of it.

It would appear that all our hearing is done in a very literal sense under water, as shown by the following extract from a London paper:

"Prof. Tyndall concluded one of his recent lectures by giving a minute description of the human ear. He explained how the external orifice of the ear is closed at the bottom by a circular tympanic membrane, behind which is a cavity known as the 'drum'; the drum is separated from the brain by two orifices, the one round and the other oval. These orifices are closed by fine membranes. Across the cavity of the drum stretches a series of four little bones, one of which acts as a hammer, and another as an anvil. Behind the bony partition, which is pierced by the two orifices already mentioned, is the extraordinary organ called the labyrinth, filled with water; this organ is between the partition and the brain, and over its lining membrane the terminal fibres of the auditory nerve are distributed. There is an apparatus inside the labyrinth admirably adapted to respond to these vibrations of the water which corresponds to the rates of vibration of certain 'bristles,' of which the said apparatus consists. Finally, there is in the labyrinth a wonderful organ, discovered by the Marches Corti, which is, to all appearance, a musical instrument, with its cords so stretched as to accept vibration of different periods, and transmit them to nerve filaments which traverse the organ. Within the ears of men, and without their knowledge or contrivance, this lute of 3,000 strings has existed for ages, accepting the music of the outer world, and rendering it fit for reception by the brain. Each musical tremor which falls upon the organ selects from its tensioned fibres the one appropriate to its own pitch, and throws that fibre into unisonant vibration. And thus, no matter how complicated the motion of the external air may be, these microscopic strings can analyze it, and reveal the constituents of which it is composed; at least such are the present views of those authorities who best understand the apparatus which transmits sonorous vibrations to the auditory nerve."

**SLEEPLESSNESS.**—The best anodyne is a liberal amount of muscular activity out of doors every day. Persons who sit around the fire and lounge on the sofa, or read or sew a great part of the day, need not expect sound sleep; only the laboring man can taste it in all its sweetness.

Many fail to sleep at night because they will persist in sleeping in the day time. It is just as impossible to healthfully force more sleep on the system than the proportion of exercise requires, as to force the stomach to digest more food than the body requires. Rather than court sleep by industrious activities, many persons resort to medicine, and every new drug which is heralded as a promoter of sleep becomes at once immensely popular, even though it is known to possess dangerous qualities.

Chloral hydrate has had a great run, and even young men are known to be purchasing it at the drug stores, to be used in promoting sleep; it should never be taken unless advised by the family physician, for the medical journals are constantly publishing cases where serious harm and even fatal results attend its habitual use.—*Journal of Health.*

**WHY THE COLOR OF BLOOD CHANGES.**—The cause of the change of color in blood—darkening when exposed to carbonic acid, and brightening when under the influence of oxygen—is not as yet thoroughly understood. It is thought, however, that the red corpuscles contained in the blood are rendered flatter by oxygen gas, while they are distended by the action of carbonic acid. It is not improbable that under the former circumstances they may reflect the light more strongly, and thus give a more distinct coloration to the blood; while, under the latter, they may transmit more light and so allow the blood to appear darker and duller. Both of these theories have able advocates.

**QUININE** has been found to be excessively poisonous to some persons for whom it has been prescribed, producing fever, and a very irritating rash upon the skin, which resembles somewhat that of scarlatina or measles, in appearance.

## Earth-Eaters.

A tribe at the mouth of the Amazon, say two recent travelers, whose veracity, we are told, can be relied upon, content themselves, or at least try to do so, with a fatty, ferruginous earth, of which they eat about a pound and a half a day. Nor is this the only place where this earth can be obtained, nor is its use confined to those who are unable to obtain any thing better. In Bolivia, for instance, an earth of this kind is sold in the public market, an analysis of which yields the following results: Every variety of these earths is almost entirely composed of fresh-water infusores, or microscopic shells. Their nutritive properties, therefore, are doubtless owing to the retention of animal substances by these shells, which thus constitute a species of antediluvian snoutenace. It is not only, however, in the South that this kind of nutriment is made use of; in a country where warmth is of the first necessity, namely, Lapland, the inhabitants make use of a white mineral, in the absence of cereals. This dust is composed of nineteen species of infusores analogous to those found in the neighborhood of Berlin. In testing this skeleton dust, which is found in considerable quantities in Sweden and Finland, as well as in Lapland, Retzius discovered that it contained a large proportion of animal matter.

**THE NEW STIMULANT.**—Chloral drinking, according to the physicians, is superseding absinthe, opium and alcoholic stimulants among the better classes. An insidious sedative, its use grows more dangerously on the tippler than more actively intoxicating drinks. The manufacture of this drug is the best evidence of the extent of its use. In Europe its production has become one of the leading chemical industries, and it is sold by the ton. Baron Liebig affirms that one German chemist manufactures and sells half a ton a week. The London *Spectator* says: "Taking chloral is the new and popular vice, particularly among women, and is doing at least as much harm as alcohol. The drug is kept in thousands of dressing-cases, and those who begin its use often grow so addicted to it that they pass their lives in a sort of contented stupefaction. Chloral drunkards will soon be an admitted variety of the species."—*Philadelphia Press.*

**CURIOUS FACTS.**—Every day brings additional proof of the superiority and greater power of endurance of medium-sized men for infantry. In answer to the question, Are you tougher and more vigorous than when you enlisted? the large, tall man almost universally answers that he is much less so; while, on the contrary, those of small or medium size, including many students and in-door mechanics, often of slender form, generally answer that they are stronger and much healthier than before they enlisted. The simple diet of the army, and pure air of tent life, invigorates them; besides, they probably take better care of themselves than large, strong men are apt to do. The last feel confident in their strength, and neglect sanitary measures.

**BEE STINGS.**—Very serious consequences sometimes arise from bee stings. The *Rural World* relates the following:—On Monday afternoon, Mrs. Wm. E. Sutliff was stung on the forehead by a bee, and instantly went into spasms. For two hours her life was despaired of, but yesterday her face commenced swelling rapidly, and last night she was much better.

These effects of stings depend quite as much upon the constitutional habit of the party as anything else. We have tried a solution of carbolic acid, one part of acid to sixty of water, and found it an almost instant and unfailing remedy.

**INSPIRATION AND EXPIRATION.**—If an adult man, breathing calmly in a sitting position, be watched, the respiratory act will be seen to be repeated thirteen or fourteen times every minute. Each act consists of certain components which succeed each other in regular rhythmical order. First, the breath is inspired, or drawn in; immediately afterward it is expired, or driven out; and these successive acts are followed by a brief pause. At each inspiration in a well-grown adult, about thirty cubic inches of air are inspired, and about the same or a slightly smaller volume expired.

At an anti-vaccinationist meeting recently held in Manchester, the resolution "That vaccination does not prevent small-pox, but doubles disease and death," was unanimously adopted.



A NEW GUIDE.—D. M. Bishop & Co., 512 Clay street, have just issued the first number of "The San Francisco Quarterly Trades' Guide and Merchants' Directory." It contains a pretty complete classified list of business, trade and professional firms, and their locations in the city, with an alphabetical index. Being issued quarterly, with the business changes corrected, makes it a convenient and useful publication.



## Hints to Miners.

## Lodes.

Miners are all familiar with the term "fissure vein;" and although many of them may have had some practical demonstration that it is frequently misapplied, they may not yet know to a certainty the principal characteristics by which to determine them, or the correct meaning of the term. Mr. Raymond, in his report on American mines and mining, gives the following definition and conclusions:

A lode is a fissure in the earth's crust, filled with mineral. The terms vein, lead, ledge and reef are used indifferently for the same thing; but all these terms are frequently applied vaguely or incorrectly to sheet deposits, which are not lodes. Thus, we hear of veins of coal; and in the common usage of miners, everything is a "lodge" which has been "located." The distinction between lodes and beds is, however, really the sharpest and most positive in the whole classification of inclosed deposits.

All lodes are fissure-lodes, even those running parallel with the stratification of the inclosing rocks, or occurring along the contact of two different rock-formations. The definition given above includes those cases, as will be shown by more clearly considering the radical distinction between lodes and beds. The latter are generally (but not always exactly) parallel with the inclosing rocks, and amount to nothing more in most cases than layers of the regular formation, differing in their contents more or less from the earlier layers under them and the later layers above them. In some instances the parallelism is only general. The beds widen and thin out, and on that account are sometimes held to be lodes, especially if steeply tilted. But this irregularity is common enough in all stratified rocks.

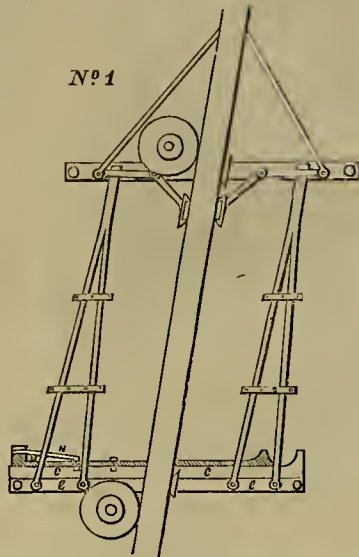
The test question deciding between a bed and a lode turns on the definition already given. A bed never is, and a lode always is, a deposit effected between already existing rocks, and, therefore, of later origin than the strata on either side; in other words, a fissure filled. The fissure may be across the stratification or parallel with it, or along the contact plane of two formations; it may have been filled in any one of many ways. These all give rise to different varieties of veins; but the general definition includes all, and is as clear as it is broad. We have then, at the outset, the following conclusions from our definition:

1. The form and direction of the vein are determined by the fissure.
2. The mineral contents are determined by the time, manner and material of the filling of the fissure.
3. The vein material is always later than that of the formation of the "country" or inclosing rocks.
4. Sheet deposits, intersecting a formation across the stratification, and independently of it, are certainly lodes; but all lodes need not necessarily take that direction.
5. Lodes parallel with the stratification are not so easily recognized, because they may be confounded with beds; but when they are proved to consist of material later in origin than the rocks on either side, and deposited in a seam or opening between them, whatever may be its direction or dimensions, they must be considered as lodes; the same is true of "contact" lodes.
6. There are, however, contact beds, layers between two formations, differing from both, but formed in the regular series of time as well as position, to which both belong. These are not lodes.

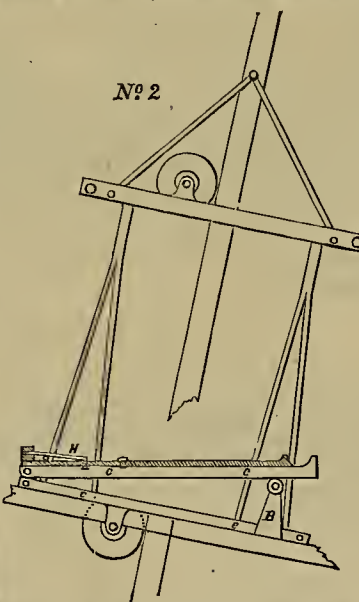
THE LEGISLATURE.—Both Houses of the Legislature, after the transaction of some unimportant business on Friday 21st inst., adjourned until January 4th.

## Hoisting Cage, with Self-adjusting Bottom.

It is consistent to suppose that any improvement whatever in mining cages is looked to with interest by all connected with the business of mining, not only where it ensures an increase of safety, but also where it relates to convenience and saving of time in loading, etc. The old system of wooden buckets and manilla rope has been entirely abandoned in mines that make any pretension of being permanently worked, and iron safety cages with wire rope have been substituted, and by degrees other improvements have been introduced. If a stone, a timber or a tool falls, the covering of the cage protects the



men; and if by any accident the rope breaks, the safety clutches spread their protecting arms, and keep the cage suspended until the breakage has been repaired. And now comes a new improvement, which is designed to overcome an existing difficulty when the shaft is not



exactly perpendicular, and the cage is made to suit its inclination.

In mines where cages are used in hoisting, the cages are made to suit the angle of the shaft at the surface landing, so that the bottom will be on a level at that angle. As the cages now in use are one rigid piece of work, it will easily be seen that where the shaft at any of the levels varies from the angle at the surface, the cage will not sit level. The way in which the difficulty has heretofore been overcome was by cutting away the walls of the shaft and putting in curves, so as to land the cage at the angle that it started from at the surface. That system is both troublesome and expensive, and it is this trouble and expense that the Self-adjusting Cage Bottom is intended to obviate.

By referring to the accompanying cut

the manner in which this improved cage works will be seen. Fig. 1 gives a view of the cage as it stands on the surface landing. The cage being made to suit the angle at the starting point, the self-adjusting bottom c. c. rests on the frame of the cage e. e.

Fig. 2 shows the cage at a landing underground, where the angle of the shaft has varied from that at the surface. The block B is fastened upon the timber upon which the cage rests, and in proper position to receive the free end of the adjustable bottom. As the cage settles down, this block lifts the lower end of the adjustable bottom to a level position so as to allow the cars to run on or off as desired.

Mr. James W. Korr of Grass Valley, Cal., the inventor of this device has taken steps through the Scientific Press Patent Agency to secure protection for his invention.

## The Advantages of Shipping Ores.

Mr. J. S. Phillips in his new work, the "Explorers, Miners, and Metallurgists companion," gives a few reasons why miners should more generally prefer to sell their concentrated ores even to metallurgical companies at a great distance rather than to reduce them at the mine. In many parts of the country smelting ores are now sent away, principally to England, for reduction. In speaking of the advantages which the English possess over this comparatively new country in this respect, Mr. Phillips says:

"Take as an example for palpable illustration of this subject any one of the large smelting works of South Wales, which are located either in or close to the coal and metal supplying sea-port towns, which have steadily increased in size and importance to accommodate the vast requirements of those gigantic firms, who have in a manner, educated the whole community of men, women and children to suit their particular manipulative purposes, for the production of coals, and reduction of minerals to supply the metals to the whole world.

They have started from the very commencement of modern metallurgy, and from their own and other people's inventions, have so improved the chemistry of smelting, and secured the general confidence of the commercial world, that they can both command and supply all markets for the following salient reasons:

1. They have the most skilful supervisors that can be obtained,
2. A superabundance of capital.
3. An ample supply of cheap, educated operatives.
4. Coals, fireclay and brick of the finest quality at merely nominal prices.
5. Natural, costless chimney draught, and "reverberatory furnaces."
6. Many furnaces, for occasional repairs when required for different treatment of peculiar ores.
7. Regular and cheap (return freight) supplies of all the varieties of minerals and matrices, from all parts, at home and abroad.
8. Systematic choice and assortment from all ores, to suit the ore that is being smelted, so as to improve the refractory by a more fusible and smeltable ore; or to enrich a smeltable lead by non-smeltable gold or silver ores; or by adding anti-monial ore to lead to produce more alloy, for peculiar markets; or adding one constitutional form of ore to another, to produce certain chemical changes that may be desired during roasting, etc.
9. Smelting some tractable ores for pure metals, to supply as such.
10. Smelting other more mixed and refractory ores for certain other markets, where purity is not essential.
11. Smelting mixed minerals, for alloys, to be sold as such for certain purposes, as copper mixed with tin or zinc, for bell metal, hearing brasses, brass, etc.
12. Humid reductions for the separate

simultaneous precipitation of the artificial and marketable base minerals, and the silver and gold for their individual markets.

13. A perfect knowledge and command of all the various requirements of trade, as well as where and when required; which is in itself an amazing advantage.

These are some few of the reasons why the miners and even metallurgists of this country will not be able to compete with such firms (at least for sometime to come) in the reduction of refractory minerals into metals.

The cost of ocean freight (supposing the miner obtains a reasonable and just price for his ore) is a mere cipher against such advantages, coupled with your disadvantageous circumstances.

In many cases it will, therefore, be much better to reduce the weight by suitable means for cheaper conveyance by land and water than to complete the whole reduction into metal on the mine.

The many other adverse local reasons need not be portrayed, as they are already sufficiently well known to those mining and business men who have too hastily endeavored to run such unequal races.

The low-grade copper ores of Cornwall, which average from five to six per cent., are not smelted in the mines, but sent to South Wales, as return freight, at about from five to six shillings per ton, in the vessels that bring coals for the steam engines and domestic purposes of that county.

A respectable general firm is already needed, and will be much more required in the city of San Francisco, for the judicious treatment of the various ores of the Pacific Coast, and such a company should either be a feeding branch of one of these larger establishments or be fully prepared to either sell some of their ores in a crude state, simply roasted, or partially smelted into regulus; whilst others may be smelted into commercial alloys or into pure metals to for the different markets.

Such a firm, if well and honestly conducted, would be mutually advantageous for the country, the miner and itself; for millions of tons might then be mined and sold, by comparatively poor men, at paying prices, which at present conditions must lie unrealized.

The day cannot be far distant when such an establishment will be in operation, but it will not be complete unless it has these facilities, and also the milling, chlorinizing and purely chemical treatments, so that every kind of ore may be benefited to suit all circumstances and markets after the best possible methods.

These different operations may be accomplished by small firms for each separate manner of treatment; but, lacking the miner's confidence and the above general advantages of one complete establishment, they will but serve the exceptional rather than the general requirements of miners, for some direct and especial object of the local manufacturer."

## Emerson's Stone Saw—Important Invention.

Your readers are familiar with the movable teeth timber saw, first introduced in California by James E. Emerson, and now in general use. Mr. Emerson has invented a saw of similar principles, which is designed to walk through marble and granite with less speed, but with every other advantage that is possessed by his timber saw.

The mode of fastening the teeth is an improvement, for the rest everything depends upon the material and the temper of the teeth, according to the hardness of the stone. For granite and porphyry, carbon points are preferable; but very great improvement has been made at Troy in the steel designed for such work, which makes it about equal to black diamonds.

The cutting teeth are made equally sharp at both ends; and when one end dulls, the other is turned up in an instant. After a full test, the leading master mechanics of Pittsburgh subscribed \$200,000 to erect works and manufacture these saws, under Emerson's supervision.

Already the stone factory is completed at Beaver Falls, Alleghany Co., Penn., and the works are being constructed. The invention has been disposed of in Great Britain to a very large marble house, which, after careful study of its merits became convinced that it would displace the present slow and costly method of dealing with marble and other quarry productions.

We are proud to claim Mr. Emerson as an old Californian. He is a brother of Professor Emerson of Oakland. J. S.



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Particular attention paid to Distillery Work. Manufac-  
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The Simplest and Most Practicable now in use.

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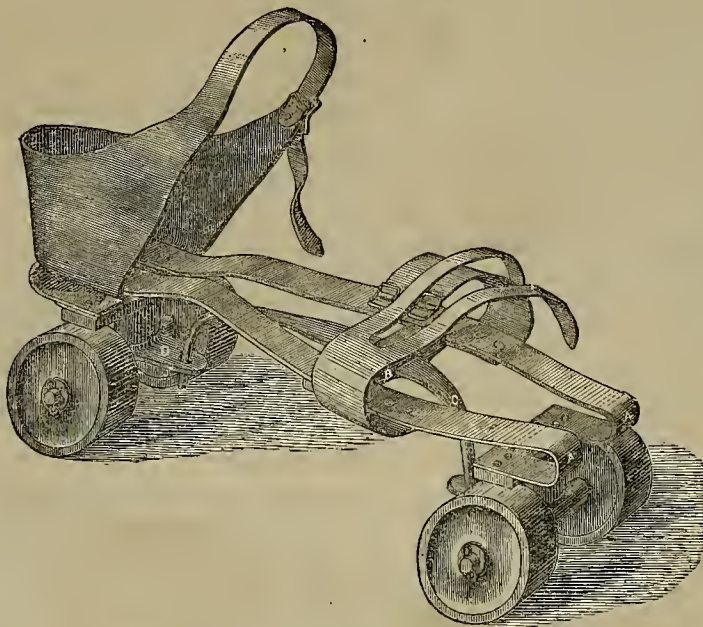
Which is Cheaper of Construction, opens its furrow  
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Less Draft than ordinary Plows  
of the same cut.

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Skate now before the public (except the Plympton Skate) that can run without infringing a former patent.

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points of merit: Beauty, Elasticity, Ease of Movement, Strength, Lightness, and does not injure the skating  
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It is fully as safe as the other and evolves neither smoke nor noxious fumes when exploded.

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ENT EUREKA GANG PLOWS," take this method of  
calling the attention of Agriculturists throughout the  
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named Plows, and offer the following reasons why they  
are entitled to preference over any other Plow in use.

They are made of the best material, and every Plow  
warranted.  
They are of light draught, easily adapted to any  
depth, and are very easily handled.

They will plow any kind of soil, and leave the ground  
in perfect order.

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These Plows took the First Premium at the State Fair  
in Sacramento, in 1870; at the Northern District Fair in  
Marysville, 1870 and 1871; and at the Upper Sacramento  
Valley Fair, Chico, 1870 and 1871. At the Mechanics'  
Fair, held in San Francisco in 1871, a Silver Medal was  
awarded these Plows; and the State Agricultural Soci-  
ety, at the last Fair, offered a premium of \$40 for the  
best Gang Plow. The committee was composed of  
practical farmers from the agricultural counties, who,  
after a fair test and thorough competition with the  
leading plows of the State, awarded the premium to the  
Eureka Gang Plow. From this it will be seen that  
these celebrated plows still maintain their reputation  
over all competitors. Patented Sept. 7, 1869.

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and 24 inches wide.

This Gang Plow combines durability with cheapness,  
being made entirely of iron by experienced workmen,  
of the best material. Over three hundred are now in use,  
and all have given entire satisfaction.

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Some of the foreign markets having  
been supplied with a spurious Worcester-  
shire sauce, upon the wrapper and labels  
of which the names of Lea and Perrins have been  
forged, L. and P. give notice that they have furnished  
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stant proceedings against manufacturers and vendors of  
such, or any other imitations by which their right may  
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wrapper, label, bottle and stopper.

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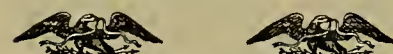
No. 485 Brannan Street..... San Francisco.  
And No. 9 Q St., bet. First and Second,  
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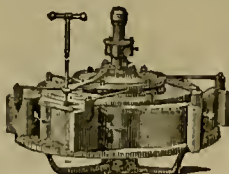
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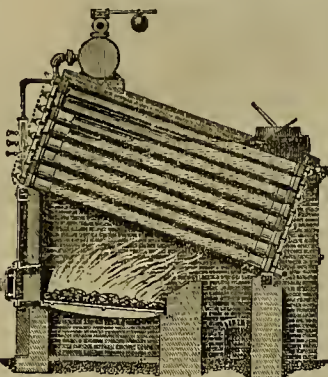
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the hiss of scorn, the hiss of snakes in the grass; but  
the most delightful hiss is that of

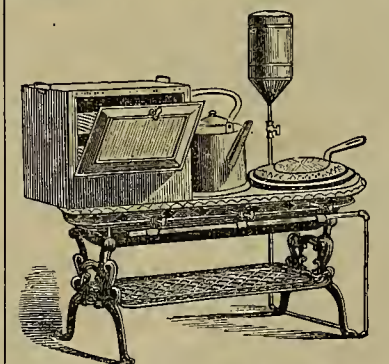
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Of course, he will take care to procure none but  
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nership heretofore existing between A. J. Severance,  
Charles W. Randall and J. Gus. Burt, under the firm  
name of "Severance, Holt & Co.," is this day dissolved  
by mutual consent. A. J. Severance, having purchased  
all the interest of his late partners, will continue the  
business of manufacturing and selling Diamond Drills,  
as before, under the style of A. J. Severance & Co.  
Dated San Francisco, Nov. 24, 1871.  
Office, 316 California street. A. J. SEVERANCE,  
CHAS. W. RANDALL,  
J. GUS. BURT.  
22-v23-4f

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

OVERLAND TRAINS.

Express Daily, via Oakland.	Express Daily, via Vallejo.	Dec. 6, 1871.	Express Daily, via Vallejo.	Express Daily, via Oakland.
LEAVE 7:00 A.M. 7:30 A.M. 8:30 A.M. 11:27 A.M.	LEAVE 8:30 A.M. 9:30 A.M. 10:30 A.M. 12:30 P.M. 1:15 P.M. 2:00 P.M. 3:15 P.M. 4:45 A.M. 6:30 A.M.	San Francisco..... Oakland..... San Jose..... Niles..... Stockton..... Vallejo..... Davis..... Sacramento..... Colfax..... Reno..... Winnemucca..... Battle Mountain..... Elko..... Ogden.....	ARRIVE 7:30 P.M. 8:00 P.M. 8:30 P.M. 1:05 P.M. 4:22 P.M. 3:30 P.M. 3:10 P.M. 2:35 P.M. 10:30 P.M. 10:30 P.M. 4:15 P.M. 1:25 P.M. 8:45 A.M. 5:30 P.M.	LEAVE 8:30 P.M. 9:30 P.M. 10:30 P.M. 12:30 P.M. 1:15 P.M. 2:00 P.M. 3:15 P.M. 4:45 A.M. 6:30 A.M.

San Francisco and San Jose.	San Francisco and Stockton and Modesto.
LEAVE 7:00 P.M. 7:10 P.M. 8:30 P.M.	LEAVE 3:00 P.M. 4:40 P.M. 5:30 P.M.
ARRIVE 10:30 P.M. 11:00 P.M. 11:45 P.M.	ARRIVE 10:40 A.M. 8:25 A.M. 7:0 A.M.

San Francisco, Stockton and Tehama.	Sacramento, Marysville and Tehama.
LEAVE 4:00 P.M. 5:10 P.M. 5:20 P.M.	LEAVE 1:05 P.M. 2:35 P.M. 3:25 P.M.
ARRIVE 11:45 A.M. 12:00 P.M. 12:10 P.M.	ARRIVE 12:15 P.M. 12:35 P.M. 12:50 P.M.

Oakland Branch.—Leave San Francisco, 7:00, 8:10, 9:2, 10:10 and 11:20 a. m., 12:10, 1:30, 3:00, 4:00, 5:15, 6:30, 7:00, 8:20 and *11:30 p. m. (9:20, 11:20 and 3:00 to Oakland only). Leave Berkeley, *5:30, 6:40, 7:50, 9:00 and 11:00 a. m., 1:30, 2:40, 4:55, 6:10, 7:40 and 10:10 p. m. Leave Oakland, *5:40, 6:50, 8:00, 9:10, 10:00, and 11:10 a. m., 12:00, 1:40, 2:50, 3:50, 5:05, 6:20, 7:30 and 10:20 p. m. ALAMEDA BRANCH.—Leave San Francisco, 7:20, 9:00, and 11:15 a. m., 1:30, 4:00, 5:30 and 7:00 p. m. (7:20, 11:15 and 5:30 to Fruit Vale only). Leave Hayward, *4:30, 7:00 and 10:45 a. m., and 3:30 p. m. Leave Fruit Vale, *5:25, 7:35, 9:00 and 11:20 a. m., 1:30, 4:05 and 5:30 p. m.
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California Pacific Railroad.	Sacramento, Davis and Marysville.
Leave S. Fran. 8:30 A.M. 4:0 P.M. *6:30 A.M.	Leave Vallejo. 10:30 A.M. 5:45 P.M. 10:35 A.M.
Arrive Calistoga. *1:30 P.M. 8:15 P.M. 1:00 P.M.	Arrive Marys'le. *4:00 P.M. 10:25 P.M. 5:15 P.M.

Leave Sacra'to. *7:30 A.M. 2:30 P.M. <th>Leave Marys'le. 6:00 A.M. *11:30 A.M.<th>Leave Calistoga. 7:50 A.M. *2:15 P.M.<th>Arrive Vallejo. 10:15 A.M. 5:30 P.M.<th>Arrive S. Fran. 12:15 P.M. 7:30 P.M.</th></th></th></th>	Leave Marys'le. 6:00 A.M. *11:30 A.M. <th>Leave Calistoga. 7:50 A.M. *2:15 P.M.<th>Arrive Vallejo. 10:15 A.M. 5:30 P.M.<th>Arrive S. Fran. 12:15 P.M. 7:30 P.M.</th></th></th>	Leave Calistoga. 7:50 A.M. *2:15 P.M. <th>Arrive Vallejo. 10:15 A.M. 5:30 P.M.<th>Arrive S. Fran. 12:15 P.M. 7:30 P.M.</th></th>	Arrive Vallejo. 10:15 A.M. 5:30 P.M. <th>Arrive S. Fran. 12:15 P.M. 7:30 P.M.</th>	Arrive S. Fran. 12:15 P.M. 7:30 P.M.
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Leave S. Fran. 8:30 A.M. *4:00 P.M. 8:30 A.M. <th>Leave Sacra'to. *11:45 A.M. 7:15 P.M. 2:30 P.M.<th>Leave Davis. 12:50 P.M. 8:05 P.M. *3:10 P.M.<th>Arrive Wood'd. 12:35 P.M. 8:35 P.M. 3:38 P.M.<th>Arrive Marys'le. 4:00 P.M. 10:35 P.M. 5:15 P.M.</th></th></th></th>	Leave Sacra'to. *11:45 A.M. 7:15 P.M. 2:30 P.M. <th>Leave Davis. 12:50 P.M. 8:05 P.M. *3:10 P.M.<th>Arrive Wood'd. 12:35 P.M. 8:35 P.M. 3:38 P.M.<th>Arrive Marys'le. 4:00 P.M. 10:35 P.M. 5:15 P.M.</th></th></th>	Leave Davis. 12:50 P.M. 8:05 P.M. *3:10 P.M. <th>Arrive Wood'd. 12:35 P.M. 8:35 P.M. 3:38 P.M.<th>Arrive Marys'le. 4:00 P.M. 10:35 P.M. 5:15 P.M.</th></th>	Arrive Wood'd. 12:35 P.M. 8:35 P.M. 3:38 P.M. <th>Arrive Marys'le. 4:00 P.M. 10:35 P.M. 5:15 P.M.</th>	Arrive Marys'le. 4:00 P.M. 10:35 P.M. 5:15 P.M.
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Leave Marys'le. *6:00 A.M. *11:30 A.M. *10:45 A.M. <th>Leave Wood'd. 7:35 A.M. 3:10 P.M. 12:30 P.M.<th>Leave Davis. 8:15 A.M. 3:10 P.M. 3:10 P.M.<th>Arrive Sacra'to. 9:00 A.M. 4:00 P.M. 1:30 P.M.<th>Arrive S. Fran. 12:15 P.M. 7:30 P.M. 7:30 P.M.</th></th></th></th>	Leave Wood'd. 7:35 A.M. 3:10 P.M. 12:30 P.M. <th>Leave Davis. 8:15 A.M. 3:10 P.M. 3:10 P.M.<th>Arrive Sacra'to. 9:00 A.M. 4:00 P.M. 1:30 P.M.<th>Arrive S. Fran. 12:15 P.M. 7:30 P.M. 7:30 P.M.</th></th></th>	Leave Davis. 8:15 A.M. 3:10 P.M. 3:10 P.M. <th>Arrive Sacra'to. 9:00 A.M. 4:00 P.M. 1:30 P.M.<th>Arrive S. Fran. 12:15 P.M. 7:30 P.M. 7:30 P.M.</th></th>	Arrive Sacra'to. 9:00 A.M. 4:00 P.M. 1:30 P.M. <th>Arrive S. Fran. 12:15 P.M. 7:30 P.M. 7:30 P.M.</th>	Arrive S. Fran. 12:15 P.M. 7:30 P.M. 7:30 P.M.
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SAN FRANCISCO & N. PACIFIC R. R.

Leave *2:00 P.M. 4:35 P.M. 5:00 P.M. 6:00 P.M. Arrive. 6:45 P.M.	San Francisco..... Donahoe..... Petaluma..... Santa Rosa..... Healdsburg.....	*11:00 A.M. 8:45 A.M. 8:20 A.M. 8:20 A.M. 6:45 A.M.	Arrive *10:00 P.M. 8:00 P.M. 2:00 P.M. 12:00 P.M. Leave.
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### WORKS BY OTHER AUTHORS.

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**Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked;** with a Chapter on the Blow-Pipe Assay of Minerals. By Wm. M. Barstow, M. D.; 1867; cloth bound, 114 pages. Printed and sold by DEWEY & CO. Price, \$1; postage free. The best treatise on the subject, and most complete work on the subject treated.

**The Quartz Operator's Hand-Book;** by P. M. Randall. Revised and Enlarged Edition. Sold Wholesale and Retail, at publishers' rates, by DEWEY & CO., Proprietors, Scientific Press, Patent Agents, Engravers and Publishers, San Francisco. Cloth bound, 175 pages. Price, \$2.

### Practical Mining and Metallurgy.

The Explorers', Miners' and Metallurgists' Companion is the title of a new book on practical mining, by J. S. Phillips, M. E., which has just been issued by Messrs. DEWEY & CO. of the Scientific Press. It is divided into five sections.

The first section contains eight chapters, the first three of which are written to give the practical man general ideas of the three ages of rock formations, and the last five chapters give elaborate descriptions of the formations and peculiarities of veins, pockets, etc., the formation of minerals, and all of the well established indications for valuable deposits, which are both interesting and valuable.

The second section on exploration, shows "How to Prospect," "Where to Prospect," "What Formation to Seek," "What to Avoid," and "How to Examine the Vein."

The third section on assaying contains fifteen chapters. The first minutely describes the preparation of the sample, etc., which is very important when accurate assays are required. The third chapter gives new and useful water treatment methods for examination and assaying of minerals. The fourth gives general methods for examination. The fifth contains new means for practical men to discriminate all the useful minerals by ordinary facilities. The sixth is an alphabetically arranged chapter for discrimination by all ready means.

These chapters are likely to be of service for such men as will require this book, while the remaining nine chapters give a great variety of the more available and safe methods for assaying all of the useful minerals. The fourth section is on the mining and engineering of deep mines, where the author has described the many minute details of how the shafts and levels should be excavated, the machinery placed, etc., for deep mining, from which many will derive important information.

The fifth and last section describes the best methods for beneficiation of minerals by roasting, smelting, milling, chloridizing and chemical means. In the several sections the work is eminently practical; and although many passages are severe on illegitimate mining, the author's intentions for improving the future should be at least respected. The work is very comprehensive, and contains a great deal of useful information which cannot be obtained from the previous books that have been written on these subjects.—Daily Examiner, Dec. 21st.

**The Fruits and Fruit Trees of America,** or the Culture, Propagation, and Management, in the Garden and Orchard, of Fruit Trees generally, with descriptions of all the finest varieties of Fruit, Native and Foreign, cultivated in this country. By A. J. Downing. Illustrated; 1688 pages; 1869. The best authority, and only complete work. Price, in cloth and gilt, \$5, post paid, by DEWEY & CO., this office.



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DEWEY & CO., Publishers,

No. 338 Montgomery St., San Francisco, Cal. Nov., 1871

### Leather Market Report.

[Collected weekly by Dolliver & Bro., No. 109 Post St.]  
SAN FRANCISCO, Thursday, December 28.

Sole Leather.—The demand is still equal to the supply, and prices still continue firm.	
City Tanned Leather, #10.....	25@28
Santa Cruz Leather, #10.....	25@28
Country Leather, #10.....	25@28
The market is well supplied with French stocks, and prices have downward tendency. Heavy California skins are firm, with an upward tendency.	
Jodot, 8 Kil., per doz.....	\$50 00@
Jodot, 11 to 15 Kil., per doz.....	75 00@ 95 00
Jodot, second choice, 11 to 15 Kil., per doz.....	50 00@ 60 00
Lemoine, 16 to 18 Kil., per doz.....	85 00@
Levin, 12 and 13 Kil., per doz.....	68 00@ 70 00
Cornellian, 16 Kil., per doz.....	72 00@
Cornellian, 12 to 14 Kil., per doz.....	65 00@ 70 00
Ogorau Calif., #10 doz.....	54 00@
Simon, 18 Kil., #10 doz.....	65 00
Simon, 20 Kil., #10 doz.....	68 00
Simon, 24 Kil., #10 doz.....	72 00
Robert Calif., 7 and 8 Kil.....	35 00@ 40 00
French Kips, #10 doz.....	1 10@ 1 30
California Kip, #10 doz.....	65 00 to 80 00
French Sheep, all colors, #10 doz.....	15 00
Eastern Calif for Backs, #10 doz.....	1 15@ 1 25
Sheep Roans for Topping, all colors, #10 doz.....	8 00@ 13 00
Sheep Roans for Lining, #10 doz.....	5 50@ 6 50
California Russia Sheep Lining, #10 doz.....	1 75@ 5 50
Best Jodot Calif Boot Legs, #10 pair.....	5 25
Good French Calif Boot Legs, #10 pair.....	4 50@ 5 00
French Calif Boot Legs, #10 pair.....	4 00
Harness Leather, #10 doz.....	30@ 37 1/2
Fair Bridle Leather, #10 doz.....	48 00@ 72 00
Skirting Leather, #10 doz.....	84@ 37 1/2
Welt Leather, #10 doz.....	30 00@ 30 00
Buff Leather, #10 foot.....	17@ 21
Wax Side Leather, #10 foot.....	18@ 20

### Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

W. H. MURRAY—General Traveling Agent.  
C. H. DWINE—Special Corresponding Agent.  
I. N. HOAG—Sacramento, General Agent.  
F. M. SALAY—San Diego, General Agent.  
L. F. MCCARTY—California.  
M. B. STARR—Pacific Coast.  
A. C. KNOX, City Soliciting and Collecting Agent.

### Mining Companies

Should advertise their Meetings, Assessments, and Sales, in the SCIENTIFIC PRESS. Rates more than one-half less than daily publications. Stockholders should take the hint and request their managers to buy colorized by advertising in a MINING JOURNAL, where all notices may be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests.

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**MARAVILLA COCOA.**—No breakfast table is complete without this delicious beverage. The Globe says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of Maravilla Cocoa. Their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage. Sold in packets only by all Grocers of their use. Also, by Taylor Brothers, Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. 1623-17

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26v23-1m

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Ore or Pulp Balances—Becker & Sons, Antwerp.  
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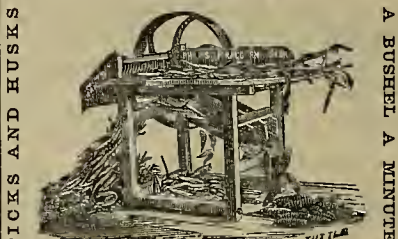
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are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETTS being the original inventor and Sole Maker in the United Kingdom.  
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## Mining and Other Companies.

During the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can make in the present state of affairs.

**Alhambra Hill Mining Company—Location**

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of December, 1871, an assessment of \$100,000 of 30 cents per share was levied upon the capital stock of said company, payable in United States gold coin, on the 15th day of January, 1872, to Henry G. Lantry, 812 Clay street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 15th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. HENRY G. LANTY, Secretary. Office, No. 612 Clay street, San Francisco, Cal. dtd-1w

**Eagle Quicksilver Mining Company—Location**

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 30th day of October, 1871, an assessment of Forty (40) dollars per share was levied upon each and every share of the mines of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 3, No. 302 Montgomery street, San Francisco, Cal. Any share upon which said assessment shall remain unpaid on Thursday, January 10th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of sale. By order of the Board of Trustees. W. H. WATSON, Secretary. Office, Room 3, No. 302 Montgomery street, San Francisco, Cal. dtd-1w

**Kincaid Flat Mining Company—Location**

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of December, 1871, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 3, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 17th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 17th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. H. CORNELL, Secretary. Office, 220 Clay street, San Francisco, Cal. dtd-1w

**Nevada Consolidated Borax Company—Location**

Notice is hereby given, that at a meeting of the Trustees of the above named company, held November 25th, 1871, an assessment of five (5) cents per share was levied on the capital stock of said company, payable on and after the 30th day of November, 1871, in United States gold coin, to the Secretary, at the office of the company, Room 420 Montgomery street, San Francisco. Any stock upon which said assessment shall remain unpaid on Wednesday, January 10th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold at public auction on Monday, January 20th, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. J. L. SANFORD, Secretary. Office—Room 1, 3d story, No. 420 Montgomery street, San Francisco, California, December 6th, 1871. dtd-1w

**Pocahontas Gold Mining Company—Location**

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of November, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 8th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees. D. A. JENNINGS, Secretary. Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal. dtd-1w

**Quail Hill Mining and Water Company—Location**

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 19th day of December, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 25th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 13th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. F. CRONISE, Secretary. Office, 409 California street, San Francisco, Cal. dtd-1w

**Seaton Mining Company—Location**

Notice—There are delinquent upon the following described stock, on account of assessment levied on the 27th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Ashburrow, Wm.....	1	1	\$20 00
Gashwiler, J. W.....	61	1	20 00
Grogan, A. B. (not issued)		10	200 00
Hastings, B. F.....	67	10	200 00
Latham, M. S.....	60	5	100 00
Latham, M. S.....	61	5	100 00
Latham, M. S.....	63	5	100 00
Latham, M. S.....	65	4	80 00
McDonald, J. W. Trustee			
For J. W. Gashwiler.....	71	5	100 00
Pringle, Geo C.....	70	5	100 00
Scott, Ed. Trustee.....	69	5	100 00
Tevia, Lloyd.....	48	5	100 00

And in accordance with law and an order of the Board of Trustees, made on the 27th day of October, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 438 California street, San Francisco, California, on the 1st day of December, 1871, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. JOEL F. LIGHTNER, Secretary. Office, No. 438 California street, San Francisco, California. 23v23-4w

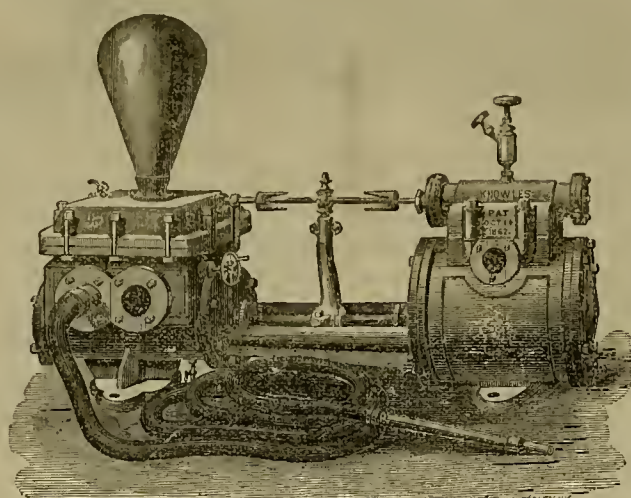
**Silver Wave Mining Company—Location**

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of December, 1871, an assessment of Three Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office. Any stock upon which said assessment shall remain unpaid on Thursday, the 25th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Friday, the 23d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. W. CLARK, Secretary. Office, 418 California St. San Francisco. dtd-1w

**KNOWLES' PATENT STEAM PUMP.**

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Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Premium and Diploma at State Fair, and Gold Medal Recommended.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The main steam valve of the Pump is not a rotary valve, but is an ordinary flat slide valve. The slight rotary motion given the valve-rod simply puts the valve in a position to be driven horizontally on its seat. This style of flat valve embodies the most favorable conditions for tightness possible, even after the wear consequent upon long use.

The steam cylinders are fitted with the most perfect spring ring packing, with screws and springs, for proper adjustment.

The water cylinders are fitted with composition heads and rings, adjustable by screws, or with leather rings or a patent fibrous head, according to the nature of the work required. All the joints are ground to fit, and require no packing. The glands and piston-rods are solid composition. The valve seats are composition, and the valves either rubber or metal, and are very durable, and are placed in the pump so as to be easily accessible, and in the larger sizes, for fire or marine purposes, are got at immediately without removing any nuts or bolts.

**CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,**

SACRAMENTO, Cal., April 14, 1871.  
A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that it gives no great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have sixteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other.

Yours truly,

A. J. STEVENS, General Master Mechanic.

**OFFICE OF PEOPLE'S TRANSPORTATION CO.,**

PORTLAND, Oregon, April 22, 1871.  
Mr. A. L. FISH—Dear Sir: The No. 4 (Knowles & Selby's) Steam Pump arrived here safe and in good order per steamer Pacific. I am pleased with the new pattern and late improvements—it works splendidly. I consider them the best steam pump now in use. They are economical and simple in construction, do good work, and can always be relied upon. I can cheerfully recommend them, having used them constantly for nearly three years. I am fully satisfied that they are the cheapest and best pump in use.

Yours respectfully,

O. MARSHALL, Chief Engineer.

**OFFICE OF N. Y. CENTRAL R. R., ALBANY, June 3, 1871.**

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: Yours of 31st was received. We have in use on our road 18 of your Steam Pumps, seven of which are used for fire purposes and 11 at water stations. Most of them have been in use three years, and are giving us entire satisfaction.

Yours very truly,

C. P. HARM.

**OFFICE OF DELAMATER IRON WORKS, NEW YORK, May 26, 1871.**

Messrs. KNOWLES & SIBLEY, 92 Liberty street—Gentlemen: In reply to your inquiry as to my opinion of your Pump, I have to say, after an experience of ten years with these pumps on land and sea, if they have faults of any kind I have not been able to discover them.

Yours very truly,

GEORGE M. REYNOLDS, Supt. Engineer.

**U. S. NAVY YARD, NEW YORK, June 3, 1871.**

Messrs. KNOWLES & SIBLEY, 92 and 94 Liberty street, New York—Gentlemen: In reply to your note of 31st, requesting my opinion of your Steam Pump, etc., as suggested from my experience with them in actual service, I have to state that I have used your pumps, and entertain the most favorable opinion of their great merit and usefulness, and for every purpose believe them to be superior to any others, and have so recommended and adopted them. They have given complete satisfaction in all cases that have come under my observation.

Yours very respectfully,

W. M. W. WOOD.

**OFFICE OF THOMAS IRON WORKS, HOKENDAUQUA, Pa., June 1, 1871.**

Messrs. KNOWLES & SIBLEY—Gentlemen: After having tried steam pumps of a great many different makes without giving proper satisfaction, we finally got one of yours. The first pump of your make we have had in use now about eight years, and it has given such excellent satisfaction that we have since that time increased the number to thirty, which we have now in use and doing good work. The small size for feeding boilers I think excel anything as yet produced, and we have adopted them in preference to anything else. We have in use a number of your Mining Pumps, which to say the least are equal to the best we have tried. I cheerfully recommend "The Knowles Pump" to any who may have use for a first-rate Steam Pump.

Respectfully yours, etc.,

EDWIN MICKLEY, Supt. of Mines.

**OFFICE OF THE SAUCON IRON CO.,**

HELLSFISTOWN, Northampton County, Pa., May 26, 1871.  
Messrs. KNOWLES & SIBLEY, New York—Gentles: We can most cheerfully respond to your inquiry as to the qualities of the Knowles Patent Steam Pumps we have in use. We bought six of your Company, some of which have been running nearly five years and are now working as well as ever. We have them at the furnace and at the mines working in clear and muddy water, and have put them to severe tests. And we can say that they have given very great satisfaction, and that we like them better than any we have ever used.

Yours very respectfully,

G. W. WHITAKER, President and Superintendent.

**OFFICE OF NEW HAVEN WATER CO., Dec. 18, 1869.**

Messrs. KNOWLES & SIBLEY, New York—Gentlemen: During the drought of last summer we were under the necessity of putting in some kind of steam pump to assist our usual supply. We gave the preference to the pumps made by Messrs. Knowles & Sibley, and purchased one of 18-inch dia. steam cyls., 12-inch dia. water cyl., and 24-inch stroke. We ran it about two months, and the estimate quantity delivered into our reservoir was 1,000,000 gallons per 24 hours under a head of 125 feet. At an average consumption of coal of three tons per 24 hours (boilers), we consider the pumps as built by them the best in the market.

Yours very truly,

P. SAULT, Superintendent.

**OFFICE OF RED BLUFF WATER WORKS, Red Bluff, June 11, 1871.**

A. L. FISH, San Francisco—Sir: The Knowles Pump we got from you has been working now four months, and has given entire satisfaction; and I take great pleasure in recommending them to be all you have claimed for them, and I will add that I think they have no equal. Yours, etc.,

JOHN CLEMENTS, Engineer.

WE BUILD AND HAVE CONSTANTLY ON HAND

**THE LARGEST STOCK OF PUMPS IN THE WORLD,**

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand.

24v22-eow

**Starlight Gold and Silver Mining Company.**

Location of Works: Humboldt County, Nevada.  
Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 1st day of November, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bee, A. W.....	47	5	\$ 1 25
Bee, H. B.....	358	50	12 50
Bee, H. B.....	360	25	6 25
Bowman, James.....	5	25	6 25
Bowman, James.....	7	25	6 25
Bowman, James.....	8	25	6 25
Bowman, James.....	10	25	6 25
Bowman, James.....	11	25	6 25
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Bowman, James.....	14	25	6 25
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Bowman, James.....	140	25	6 25
Bowman, James.....	141	25	6 25



## Machinists and Foundries.

ESTABLISHED 1851.

## PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,  
GEO. W. FOGG, Superintendent.

## Steam Engines and Boilers,

MARINE AND STATIONARY,

## IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

Particular attention paid to Jobbing Work and Repairs.  
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.  
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## Foundry and Iron Works.

HINCKLEY &amp; CO.,

MANUFACTURERS OF

## STEAM ENGINES,

## Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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GEORGE T. PRACY,  
MACHINE WORKS,109 and 111 Mission Street,  
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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,  
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QUARTZ MACHINERY,  
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AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequalled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY &amp; CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR  
Pracy's Celebrated Governor.TURNING LATHES, Etc., constantly on hand.  
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## Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of  
RAILROAD AND OTHER IRON  
—AND—  
Every Variety of Shafting.Embracing ALL SIZES of  
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

## HAMMERED IRON

Of every description and size

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

The highest price paid for Scrap Iron. 9v143m

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of every description, manufactured 24v16qr

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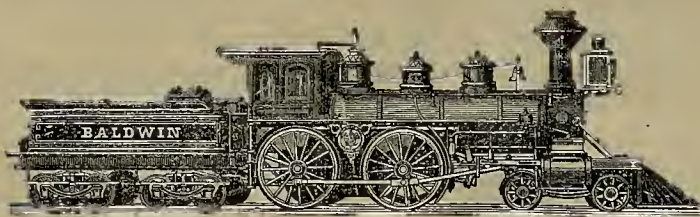
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Machinery and Castings of all kinds.

7v23tf I. L. MORTLHRAP, President.

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M. BAIRD &amp; CO., Philadelphia,

## MANUFACTURERS OF LOCOMOTIVE ENGINES,

Especially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

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WILLIAMS, BLANCHARD &amp; Co., Agents, 218 California street, San Francisco, Cal. apl-cow26t

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low

Pressure

## BOILERS

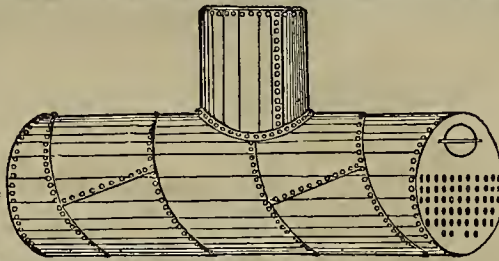
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



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Sheet Iron Work

to every

DESCRIPTION

done at the

Shortest Notice.

All kinds of

JOBGING

and

Repairing

Promptly Attended

to.

## To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

## THE GRICE &amp; LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. &amp; L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

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THE RISDON  
Iron and Locomotive Works.INCORPORATED.....APRIL 30, 1863.  
CAPITAL.....\$1,000,000.

## LOCATION OF WORKS:

Corner of Beale and Howard Streets,  
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

## Directors:

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Wm. Norris, Wm. H. Taylor, Lloyd Tevis,  
James D. Walker.WM. H. TAYLOR.....President.  
C. E. McLANE.....Vice President.  
JOSEPH MOORE.....Superintendent.  
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24v17-47

## UNION IRON WORKS,

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WILLIAMS, ROOT &amp; NEILSON,

MANUFACTURERS OF

## STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT

COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

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PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

## SHEET IRON PIPE.

THE

## Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

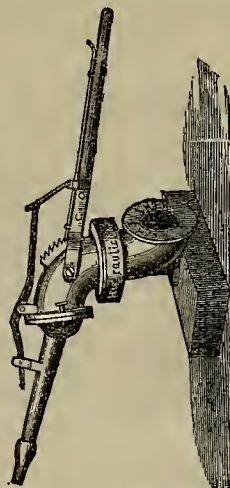
24v22-3m JOSEPH MOORE, Superintendent.

## Machinery.

## HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE.

is the Best Hydraulic Machine in Use.



MACHINES MANUFACTURED TO ORDER,

to throw from one to an eight-inch stream.

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Address F. H. FISHER, Nevada, Cal.

## CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Gears of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

PRICES MODERATE.

J. H. WEED V. KINGWELL

CAST IRON PIPE,  
FOR WATER AND GAS.

PIPE of all sizes, of a very superior quality, is now being made at the

## Pacific Iron Works,

In this city, under the Patents of Farrar & Whitling.  
17v23-3m GODDARD & CO.

## WHY THE WILSON

## Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from \$10,000 to \$18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Oam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbog," but call and investigate its merits. One can always be seen at the Pacific Iron Works.  
Ten of these Mills are now in operation.  
For further particulars address

FURMAN R. WILSON,

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## TRAVIS &amp; WAGNER!

AGENTS FOR

Dufour &amp; Co.'s.,

Celebrated Dutch Anchor brand Bolt- ing Cloths; Smit- ting Machines; Bran- dusters; Mill Picks; Mill Picks dressed; Mill stones repaired rebuilt and balanced.

MANUFACTURERS OF

French Burr Mill

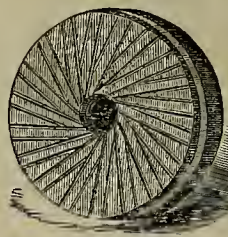
Stones, Portable

Mills of all sizes,

from 16 to 36 inches, for grinding Corn, Barley, Feed,

Salt, Paints, Drugs, &amp;c. Mills specially adapted for grinding Quartz.

2v22-lyins 41 First st., San Francisco.



from 16 to 36 inches, for grinding Corn, Barley, Feed, Salt, Paints, Drugs, &amp;c. Mills specially adapted for grinding Quartz.

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## WOODWORKING MACHINERY

MOLDING, MORTISING,  
TENONING AND SHAPING  
MACHINES,  
BAND SAWS,SCROLL SAWS,  
Planing & Matching  
MACHINES, ETC.,For Railroad, Oak, and AGRICULTURAL SHOPS, Etc., Etc.  
Superior to any in use.J. A. FAY & CO.,  
CINCINNATI, OHIO.

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## POWER, TAITER &amp; CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,  
3003 Chestnut street (West end Chestnut street Bridge)  
PHILADELPHIA.

Woodworth Planers a Specialty. 2v23-1y

THEODORE KALLENBERG,  
MACHINIST,

and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

## CAST STEEL FILES.

John T. Bunker &amp; Co.'s—We wish to inform Dealers and Iron Workers that we are Agents for these celebrated Files, and are offering superior inducements to introduce them. (22-v23-3m) HOOKER &amp; CO.



FAIRMOUNT MACHINE WORKS, 2106 WOOD STREET,

Power Loom Works, N. W. Cor. Hamilton and 21st Streets,

PHILADELPHIA, PENN.

THOMAS WOOD,

MANUFACTURER OF

POWER LOOMS,

Spooling, Winding, Beaming, Dyeing and Sizing Machines.

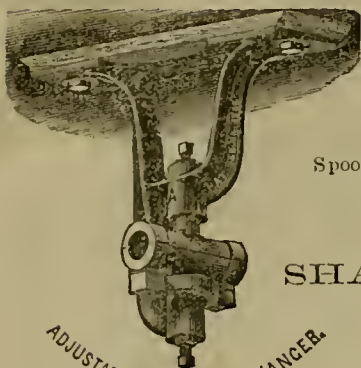
ALSO SELF-ACTING

WOOL SCOURING MACHINES.

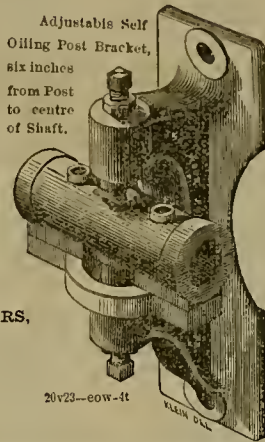
Plans taken and Factories fitted out complete with

SHAFTING AND GEARING.

PULLEYS, COUPLINGS AND SELF-OILING HANGERS,  
ADJUSTABLE OR RIGID BEARINGS  
ALWAYS ON HAND.



ADJUSTABLE SELF-OILING HANGER.

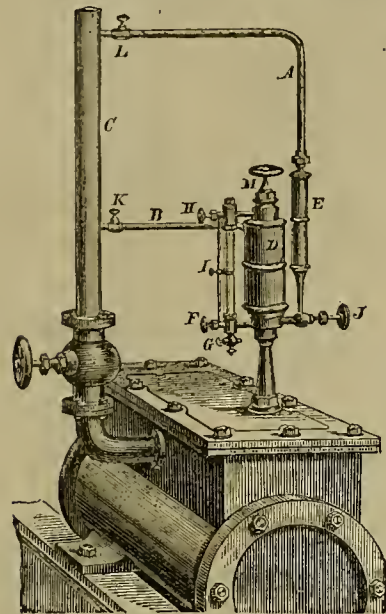


Adjustable Self  
Oiling Post Bracket,  
six inches  
from Post  
to centre  
of Shaft.

20v23-cow-ft

ALSO OIL

N. Seibert's Eureka Lubricators.



**HIGHEST FAVORITE**  
Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stops; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23ff

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF  
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.  
13 and 15 Fremont street, near Market, San Francisco  
10v14or

RICKARD & DURDEN'S  
ANTI-SCALE COMPOUND,

For the Prevention of Incrustation in Steam Boilers,

Patented July 25, 1871.

The Cheapest and Most Effective Material for the purpose ever introduced.

REFERENCES:—Eisen Bros., Pioneer Flour Mills; U. S. B. Mint, S. F.; Korbel & Bros., South Park Saw Mills; Miners' Foundry, Pacific Iron Works, Etna Iron Works, Pacific Saw Factory, Nelson & Doble, Messrs. Hobbs & Gilmore, Etc., Etc. Send for Circular with Testimonials and Directions.

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O. M. CORNELL ..... 72 South C street, Virginia, Nev.  
MOTT, FISH & Co. .... Main street, Hamilton, Nev.

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

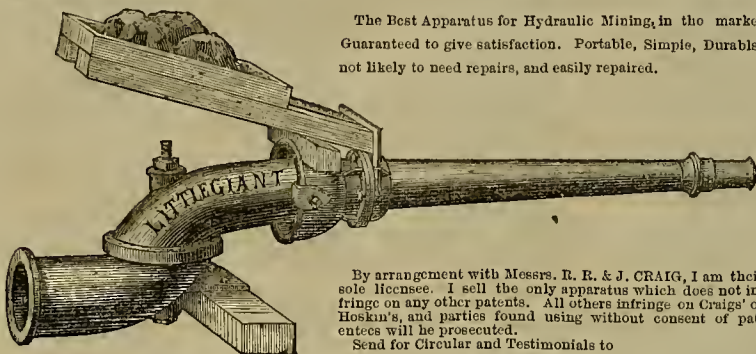
Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS  
AND KNIVES COMPLETE.

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-by

Hoskin's Patent Little Giant Hydraulic Pipe Joint and Nozzle.

The Best Apparatus for Hydraulic Mining, in the market  
Guaranteed to give satisfaction. Portable, Simple, Durable,  
not likely to need repairs, and easily repaired.



15v23-4m

R. HOSKIN, Dutch Flat, Cal.

CAMERON'S  
STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

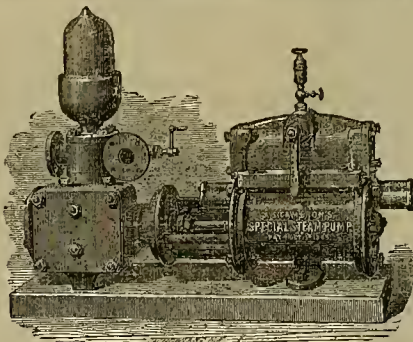
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



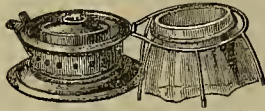
HUGHES' PATENT

REMOVABLE GLOBE LANTERN.



Since the time when King Alfred made the first lantern by surrounding a candle with a transparent casing of horn, this class of appliances has been one of the greatest utility and most extended use. Among the latest improvements in its construction is that illustrated in the accompanying engravings, and designed to secure the threefold object of providing for the easy cleansing of the glass portion, the secure retention of the upper in place upon the lower part of the lantern, and the affixing of the ball to the top of the lantern in a durable and efficient manner. The base of the lantern is provided with the usual detachable lamp, and at one side has hinged to its upper edge a wire frame designed to carry and protect the glass portion or body of the lantern, and at the upper end of which is the cylindrical top, perforated in the ordinary manner to permit the escape of the products of combustion from the lamp. Arranged at that side of the base opposite the hinge is an angular spring-catch so applied as to catch over the annular lower rim of the wire frame, and in conjunction with the hinge, to hold the said frame firmly in place upon the base as required when the lantern is in use.

This Lantern is offered as



The Best and Most Desirable in Use.

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This Amalgamator Operates as Follows:

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From July 1, 1871, to Dec. 30, 1871.

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